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CONTENTS.

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.

MACKENZIE DAVIDSON MEMORIAL LECTURE on the Importance of the Infinitely Little. Delivered before the Section of Electro-therapeutics of the Royal Society of Medicine on March 18th, 1921, by W. D. HALLIBURTON, M.D. Lond., F.R.S., Professor of Physiology in King's College, London 627

ORIGINAL ARTICLES.

Congenital Syphilis. By HERBERT MORLEY FLETCHER, M.D. Cantab., F.R.C.P.Lond., Physician to St. Bartholomew's Hospital 630

Post-Salvarsan Jaundice. By A. T. TODD, O.B.E., M.B. Edin., M.R.C.P. Lond., Major, R.A.M.C.; Consultant Physician, Rhine Forces..... 632

Generalia on the Louse Problem at the Western Front. By A. D. PEACOCK, M.Sc., Armstrong College, University of Durham..... 634

Acute Puerperal Salpingo-Peritonitis. By ALECK W. BOURNE, M.B., B.Ch. Cantab., F.R.C.S. Eng., Obstetric Surgeon to Queen Charlotte's Hospital..... 637

A Further Series of Forty Cases of Bone-grafted Mandibles. By GILBERT CHUBB, D.Sc., M.B. Lond., F.R.C.S. Eng., Surgeon to the Throat Hospital, Golden-square.—*(Illustrated)* 640

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The Ideal Element in Medicine. Illustrated by the Life of John Hunter. By H. H. BASHFORD, M.D., B.S. Lond.—*(Concluded)*..... 675

CLINICAL NOTES:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

Two Cases of Gangrene of the Lung Complicating Influenzal Pneumonia. By J. DE VILLE MATHER, M.D. Manch., Assistant Physician, Manchester Northern Hospital; and F. B. SMITH, B.Ch. Cantab..... 642

A Note on Splenectomy for Torsion of the Spleen in a Child. By A. H. SOUTHAM, M.A., M.Ch.Oxon., F.R.C.S. Eng., Resident Surgical Officer, Manchester Royal Infirmary 642

MEDICAL SOCIETIES.

Royal Society of Medicine: General Meeting..... 643
Section of Pathology..... 647

Cardiff Medical Society..... 647

Liverpool Medical Institution and Manchester Medical Society..... 648

Royal Medico-Chirurgical Society of Glasgow..... 648

Bristol Medico-Chirurgical Society..... 649

Société de Thérapeutique de Paris 649

REVIEWS AND NOTICES OF BOOKS

Traité de Pathologie Médicale et de Thérapeutique Appliquée. Tuberculose. Edited by Émile Sergent, L. Ribadeau-Dumas, and L. Babonneix..... 650

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Die specifische Percutanbehandlung der Tuberkulose mit dem Petruschkyschen Tuberkulinliniment. By Dr. F. Grossmann..... 651

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Poverty and its Vicious Circles. Second edition. By Jamieson B. Hurry, M.A., M.D..... 651

Studies in Dreams. By Mary Arnold-Forster..... 652

Précis de Microbiologie Clinique. Par Fernand Bezançon 652

Manual for Health Visitors and Infant Welfare Workers. By Several Writers. Edited by Mrs. Enid Eve..... 652

VITAL STATISTICS:
Vital Statistics of London during February, 1921 663
Analysis of Sickness and Mortality Statistics in London during February, 1921 663

THE SERVICES.

Additional Pay for Officers on Committees 665
Royal Army Medical Corps... 665

LEADING ARTICLES.

OPHTHALMIA NEONATORUM... 653

PROTOZOAL INTESTINAL INFECTION AT HOME 653

APPROVED SOCIETIES AND VOLUNTARY HOSPITALS..... 654

DEFENCE OF THE MEDICINE-MAN..... 655

ANNOTATIONS.

University Grants..... 656
Acute Peritonitis Simulating Enteritis..... 656
T.N.T. in the Animal Body ... 657
Gustav Killian 658
The Non-Operative Treatment of Surgical Tuberculosis..... 658
Angina Pectoris in Diabetes.. 658
The Manchester Radium Institute 658
Syphilis of the Pancreas..... 659
"Idiopathic" Dilatation of the Urinary Bladder..... 659

SPECIAL ARTICLES.

Vienna: Increase of Prostitution and Syphilis in Vienna during the War..... 664

The Langham Telephone Exchange: Medical Men's New Numbers 659

CORRESPONDENCE.

Vanishing Typhoid in Philadelphia (Dr. Guy Hinsdale) 665
Graves's Disease (Mr. Walter Edmunds)..... 665
The Pathology of Relapsing Fever (Dr. W. H. Willcox).. 666
Venereal Infection in Rhine Army (Miss Ettie A. Rout).. 666
Dangerous Drugs Act, 1920 (Dr. Hugh Woods)..... 667
Analysis of the Gastric Contents (Mr. Sydney W. Cole)..... 667
Treatment for Internal Cancer (Dr. Reginald Larkin)..... 667

MEDICAL NEWS.

University of Oxford: Radcliffe Travelling Fellowship.—Radcliffe Prize, 1921..... 672
University of Manchester: Pass-list 672
University of Durham: Faculty of Medicine: Pass-list..... 672
Queen's University of Belfast: Degrees conferred..... 672
A Nurses Training College in Brussels 662
Literary Intelligence 665
Maternity and Child Welfare Centres and Day Nurseries 667
Society for the Study of Inebriety..... 672
Panel Nurses..... 672
Congrès International de Médecine et de Pharmacie Militaires 672
Liverpool Dispensaries..... 672
Royal Medical Benevolent Fund..... 672
Red Cross Entente..... 673
Royal College of Physicians of London..... 673
Presentation to a Medical Man 673
The Position of Poor-law Medical Officers..... 673
National League for Health, Maternity, and Child Welfare 673
Royal Portsmouth Hospital... 673

PARLIAMENTARY INTELLIGENCE.

House of Lords: Special Committee on Venereal Diseases.—Criminal Law Amendment Bill..... 668
House of Commons: Venereal Disease.—Royal Naval Hospital at Yokohama.—Committee on Medical Records.—Medical Officers on China Gunboats.—State Contribution to Health Services.—Report on Official Statistics.—Public Health (Tuberculosis) Bill.—Non-attributable Disability.—Treatment of Neurasthenic Ex-Service Men.—Advisory Committee on Blind Welfare.—Financial Position of the Hospitals.—Alcoholic Liquors as Medicine.—Pension Appeals in London.—Treatment of Bilharziasis.—Washington Maternity Convention..... 670

OBITUARY.

William Ironside Bruce, M.D. Aberd., Physician to the X Ray and Electrical Departments, Charing Cross Hospital 673

NOTES, SHORT COMMENTS, &c.

One Aspect of Birth Control... 677
The Structure of Bone..... 677
Colonial Health Reports..... 677
International Congress of Comparative Pathology 678
Under-weights in Missouri 678
An Accident during Use of a Humane Cattle Killer..... 678

Books, &c., received..... 671
Appointments 674
Vacancies..... 674
Births, Marriages, and Deaths 674
Medical Diary 674
Acknowledgments of Communications received..... 675

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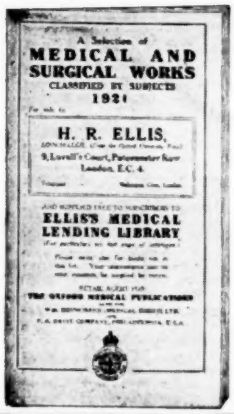

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To trace even in outline the various steps which have led to the present proud position in which this branch of science stands to-day would be a task beyond my powers and beyond your powers of endurance, but I may take as my text to illustrate one feature in the advance, if not its mainspring, a reminiscence of my own.

Attention to Minute Detail.

In 1888 I attended at Bath a meeting of the British Association, and as it was almost the first I had been to I listened to the presidential and other addresses with great attention. The president that year was the great engineer, the late Sir Frederick Bramwell, and well do I remember how he started his address. He began by alluding to a speech he had heard from the late Lord Iddesleigh, who charmed an audience for a whole evening by speaking on the very important subject, "Nothing." Sir Frederick Bramwell said he would not try to copy this feat, but would do his best to speak on "Next to Nothing." By this neat phrase he meant those little things which are of supreme importance. He gave numerous examples from his own subject to show how it was that attention to details had converted crude machinery into effective and useful instruments, whether they were guns or bridges, engines or ships. Among other subjects he took to illustrate his theme I remember he singled out the telephone as a triumph of science which the "next to nothings" had done so much to perfect. At that time he was naturally not aware of how in later years red-tapeism, and the like, would have taken upon itself to neutralise some of the excellent qualities that science had bestowed upon it. At the conclusion he ventured to prophesy that it would not be long before men were able to fly.

But gifted as Sir Frederick Bramwell was with the prophetic instinct he did not at that time, now 33 years ago, foretell the discovery of those vibrations which it is now customary to term X rays, nor of those other kinds of radiant energy which the name of radium calls up. Still less could he have predicted the value of these discoveries to medicine and to surgery, and least of all would he have pictured even in imagination the coming of a man who so fully illustrated the importance of attention to details, to the "next to nothings," a personality whose name we are met together to commemorate this evening. Sir James Mackenzie Davidson, whose sterling and genial character we all remember with affection, was first and foremost one who never spared trouble: he was one whose numerous inventions, the result of his painstaking attention to apparently small and trivial things, succeeded in making the bare bones of his subject live, just as his skiagrams represented them in life-like perspective.

The Physiologist in Medicine.

I wish that your section could have selected someone more capable than myself of dealing with this subject from the technical point of view. But you could not have chosen one who has a greater admiration for the genius and ability of our lamented friend. Your choice has fallen on a physiologist whose labours have been more directed into chemical than physical channels, and I regard it not so much as a compliment to myself as an honour to our band of quiet workers who are seeking out the ways of Nature by the way of experiment, and are doing their best to give to the art of medicine the sound basis of scientific knowledge. For too long the workers in the laboratory and those by the bedside have been groping out their own salvation in separate ways. Your request that a physiologist should address you to-night is evidence that the entente between us which is now happily growing needs still further strengthening. I feel that it does us all good to get at times out of our own special ruts.

Before coming to what, after all, is my main subject, there is one general consideration which I should like to place before you. The crowded condition of the medical curriculum in which the poor unfortunate student is presented with an ever-growing number of subjects for study while the length of the day still remains at the usual standard of 24 hours, is producing just now one of those attempts which recur periodically to revise his scheme of study. We are told that there is no need for him to learn his anatomy so thoroughly, that his organic chemistry must be reduced to a minimum; and, last and worst, his physiology course must be drastically shortened, and this in spite of the fact that all these subjects are growing fast, and that medical men are seeing more and more the truth that physiology is the corner stone around which the superstructure of medical science is built. Although physiology still figures on paper as quantitatively large, the restriction suggested is in the kind of physiology to be taught, and the word applied physiology designates that what is wanted for the student is physiology in its direct bearing on medical practice. The frog, which has served for so long as the object lesson of so many physiological precepts, is to be deposed from its high position, and, so far as is possible, experiments on man himself are to be substituted.

Value to Mankind of Purely Scientific Effort.

In speaking of Galvani's work, I have already given one example of how a subject of purely scientific interest, studied with no ulterior or utilitarian motive, was found to be of inestimable value to mankind. Such instances could be multiplied indefinitely. How would Lister's work have been possible without the preliminary academic labours of the chemist Pasteur? When Miescher set out to investigate the chemistry of the roe of the salmon, did he think that it would be on that investigation that our knowledge of the pathology of gout would be founded? When Bayliss applied himself

to study colloids he could not have dreamed that a powerful weapon against wound shock would be discovered in that by-path. But I need not weary you with other instances. When a scientific man studies nature for the sake of pure knowledge, who can say to what practical use his followers may adapt it? In deciding in my own mind whether I approve or disapprove of these attempts to reform or revolutionise medical training, I am torn by conflicting emotions. On the one hand, I sympathise deeply with the student, and realise the impossibility of getting a quart into a pint jug; on the other hand, there is my love of pure science, and the conviction that any and every truth must ultimately bear practical fruit. I am not conservative by nature, and welcome every true reform, and I have little sympathy with the legendary professor at one of our ancient seats of learning, who, at the end of a life devoted to laborious research, thanked God he had never done anything that would be of the slightest use to anyone. One has in such an impasse to face facts and exercise one's common sense. A thorough grounding in general physiological knowledge must remain a sine qua non, but in the details of its many ramifications one must make a judicious selection, and the choice must naturally first fall on those parts of the subject in which the practical outcome is already realised rather than on those the application of which is still to seek. From the point of view of those in this section and of those who aspire to join its ranks later, one trusts that the electrical phenomena which are so easily demonstrated in all essentials on the muscles and nerves of frogs will not fall under the ban of those who are trying to limit the excursions of the student into the scientific aspects of the subject.

The occasion may not be inopportune to say a few words on some of the modern problems of physiology and tell you briefly the progress we have made and are making at the present time. To attack all these questions in the space of a single address would be impossible. Again, one has to make a selection, and I intend to limit myself to three. I think it will be found that in these three cases the importance of the "next to nothing" principle will be abundantly illustrated. This is the day of great things, because we are realising the importance of the infinitely little.

Hormones.

The invention of the word hormone dates from the discovery made by Bayliss and Starling of the chemical messenger which is elaborated in the intestine under the influence of the gastric acid, and which, after absorption, stimulates the pancreas to pour out its juice at the time when it is wanted to carry on to completion the digestive work begun in the mouth and stomach. Previous to this time we were imbued with the teaching that the harmonising or, to use Sherrington's phrase, the integration of the bodily functions is due to the activity of that ruling system of the body known as the "nervous system." The nervous system is not displaced from its high estate, but for the first time in the history of our science we realised to the full the valuable help rendered to the telegraphic service of the body by humbler but none the less useful ministers to our comfort which Starling aptly compared to the postmen.

Although the actual word hormone was not coined until secretin was discovered by Bayliss and Starling, the importance of chemical agents had been really recognised earlier, and more especially in relation to that group of formerly mysterious organs known then as the ductless glands, but now generally dubbed the endocrine organs; they are so called because they form an internal secretion—that is, a secretion which leaves by no specific duct, but by the blood or lymph that streams from the organ in question. It was no wonder that ignorance prevailed for so long as to their function, seeing that the new chemical principle each forms is masked by the protein-rich fluid which it enters. But now, thanks to the overcoming of this and other difficulties, we know a good deal about the thyroid, the adrenal body, the pituitary gland, the islets of Langerhans, the corpus luteum, and others.

Many details have still to be worked out, and some of our ductless glands are territories almost as unknown as Central Africa was in our youthful days. The chemical messengers are all grouped together under the general name hormone, a term which immediately "caught on." Attempts have been made to distinguish classes among the chemical messengers to indicate that some stimulate, some depress, and so forth. But the terms introduced with this object by Sharpey Schafer and more recently by Gley have not yet at any rate passed into general usage. Speaking of our French colleague, Professor E. Gley, reminds me that the term "internal secretion" was first employed by another great Frenchman, Claude Bernard, in relation to the liver's important work in pouring sugar into the blood stream at a steady pace. In most cases the index pointing the way to discovery has been the result of removing the organ and of injecting extracts of it into the blood and noting the results. Professor Gley has recently in one of his published discourses laid down the conditions which must be fulfilled in order that a gland may be admitted to the class of endocrine organs. He very properly decries trust being placed merely upon the results of ablation or the effects of injecting extracts. In addition, there are three main conditions which must be conformed to in order that a gland may be enrolled within this category: first, the anatomical—that is, the absence of a duct; secondly, the chemical, the recognition in the venous blood of such organs of a specific chemical product; and thirdly, the physiological, the possession by the venous blood of specific physiological properties, and this last is, of course, the superlative test. He takes the work of Bayliss and Starling on secretin as an example; it was not until Fleig, and Enriquez and Hallion actually worked with the venous blood coming from the duodenum that the probability of the truth of Bayliss and Starling's views founded upon the results of injection of duodenal extracts was rendered a certainty.

Professor Gley has done good service not only by his own experimental work, but in pointing out the way in which work on this subject must be continued. For we must confess that up till now our conclusions in reference to many of the endocrine glands do not rest on experiments which fulfil all of Gley's conditions. We must further recognise that it does not follow that because most of these ductless organs form internal secretions, all of them do so. Nature seldom works in one pattern, but her modus operandi varies. The parathyroids, for example, probably form no substance useful to the rest of the body's machinery, but probably act by removing or neutralising harmful products formed elsewhere. Noël Paton and his colleagues have shown that the poison they detoxicate is a guanidine compound derived from muscular metabolism, and if this is not removed tetany is the result.

Chemical Constitution of Internal Secretions.

Restricting ourselves, however, to the truly endocrine glands, let us dwell for a moment, not on what we know, but on the gaps in our knowledge. The chemical constitution of that iodine complex which is secreted by the thyroid has been unravelled by Kendall in America. The constitution of adrenaline secreted by the suprarenal medulla is so well recognised that it has even been synthesised by laboratory processes. The composition of pituitrin secreted by the posterior lobe of the pituitary body looks as though it will be the next to yield to the chemist's manipulations. But what do we know of the internal secretion of the part of the pituitary which is probably most essential to life, or of that of the suprarenal cortex, which is certainly the most important portion of that gland, or the nature of the internal secretion of the pancreatic islets, or of the corpus luteum in the ovary, and even of secretin itself?

I mention these few hiatuses in our knowledge to illustrate how much our wisdom is in its infancy, what fields are still to be tilled, and, lest we swell with undue pride at our present accomplishments. But, whatever

gland we think about, we may be sure that quite minute quantities of their various secretions are sufficient to do the necessary work, and that these infinitesimally small amounts are indispensable, not only for our well-being, but for life itself. This, at any rate, has been proven for those secretions which can be quantitatively examined. Even although our knowledge of pituitrin is still over the border, we know that extreme dilutions of pituitary extract can exert marked power in causing plain muscle to contract vigorously, and, in the case of adrenaline, one can demonstrate that the injection of a few cubic centimetres of a solution containing only one part in a million or more of neutral saline diluent will provoke marked physiological effects on heart and blood-vessels.

Other examples of organic substances which call forth physiological effects in equally minute or even more attenuated concentrations might be given; there is, for instance, an acetyl derivative of choline, one of the constituents of our body, and the powerful amine known as histamine, which may be mentioned. In anaphylaxis, also, similar infinitesimal amounts of organic substances produce gigantic effects. Such minute doses make the doses of that product of a past generation known as homœopathists seem enormous in proportion—a reflection which will awake an echo in the hearts of those who deal with radium emanations.

Endocrine Balance.

From the days when we learnt physics we doubtless remember that important natural law which states that action and reaction are equal and opposite. The law holds in the opposing activities of our hormones, and an important branch of study has been to ascertain how such opposing actions are balanced so that they work together for good. The way in which the different organs, endocrine and otherwise, act and react upon each other has been one of the most instructive and interesting outcomes of the discovery of the internal secretions themselves. I do not think one could find any other subject which has in the present day so deeply influenced medicine as the hormone conception. Instead of remaining, as many physiological discoveries have remained, dormant as praiseworthy laboratory curiosities, the application to the practical study of disease has here been immediate, and medicine, surgery, gynæcology, and the numerous specialties of practice have all been profoundly influenced by the new doctrines. Among the specialties one must particularly allude to the one represented here this evening. Those who, on the one hand, are employing in diagnosis and treatment various electrical forms of energy, and those who are similarly engaged in radiology, have recognised that they have the power of controlling and influencing the endocrine organs to form more or less of these internal secretions for the benefit of their patients. I wish I had the special knowledge to dwell for a moment on this aspect of the problem, but those who are listening to me will be able to fill in the details of this part of the picture. The discovery of radium has been one of the greatest feats of modern science, but I need not tell my hearers that this new power for good may, like the X rays, be also in unwise hands an equally powerful agent for evil. When the activity of its emanations on living cells were first demonstrated there was perhaps naturally too great confidence displayed in its ability to cure every ill, including those which, like cancer, had defied every previous effort to conquer them.

That phase is now passed and the proper place of radium in our armoury is being adjusted to the facts. History is always repeating itself, and the story of radium is a repetition of what has occurred before when startling new discoveries had been revealed to the world. In the old days of the alchemists, who sought by magic and by the help of astral and similar agencies to discover the philosopher's stone and the elixir of life, the disappointments and failures were as numerous as the attempts to discover the secret of vitality. When alchemy was replaced by more exact science new revelations were wistfully and hopefully regarded as likely to yield the long-hidden secret; two of these epochs I have already alluded to to-night, one was the discovery of galvanism in the eighteenth century, the other of radium in the twentieth.

May I digress and linger a moment to mention one more which marked a similar epoch in the seventeenth century? I allude to the discovery of phosphorus. In the early years of that century a substance was prepared by heating heavy spar with combustible organic matter (egg white and charcoal) and this substance glowed in the dark, and for many years the name phosphorus or light-bearer was given to any substance which had the same property. The actual element we now call phosphorus was prepared by Brand about 1670, and was at first made in small quantities only from animal products—namely, urine and bones. Can it be wondered at, that in those days of superstition and mysticism the discovery in animal products of a substance which burnt and emitted light without ignition was hailed as a discovery which at last had hit upon the vital principle? Phosphorus played an important part in the development of the theory of phlogiston, which soon afterwards dominated philosophic thought, but in time died like so many other theories before and since. The furore created by the discovery of phosphorus had been paralleled by the discovery of radium in recent years. Only let us congratulate ourselves that the 250 years which intervened between the two events have taught us more wisdom, and we are not so likely to repeat the hysterical enthusiasm of our ancestors.

Accessory Food Factors.

This, however, is a parenthesis which originated from my mention of the fact that hormones and all that they connote are not simply of chemical interest, but that their importance is recognised as a factor in electro-therapeutics as in other branches of medical science. I do not think I can say the same thing about the second subject I have selected to bring before you. My only excuse for so doing is that it is one on which I can venture to speak at first hand. It may not interest you as electro-therapists, though it is not devoid of importance to you as human beings, for to all living creatures the question of food is of superlative value. The particular portion of this wide problem I intend to say a few words about is one in which also the quantitatively little is qualitatively great. I allude to those substances in our diet which we term the vitamins. The word "vitamin" is not as old as the present century, and although it is not an ideal term it has come to stay, and is certainly less cumbrous than the phrase "accessory food factor," which is its synonym.

[The lecturer then gave a brief summary of our knowledge of the vitamins, and alluded to the importance of the "next to nothing" principle there. Though accurate quantitative methods are still to be devised for their estimation, one thing is perfectly certain, and that is that the requisite amount is extremely minute, and this small amount is capable of converting a useless into a useful diet. He then continued:]

Before I leave the subject of food may I unburden myself of a suggestion? Empiricism is not always to be condemned. What we call empiricism is frequently the result of past experience. As an example, take a prescription of cod-liver oil, or of butter and cream. A few years ago it would have been impossible to explain why these forms of fat are superior, we will say, to olive and vegetable margarine. The mere fact that they are better was empirical, and now the practitioner has been fully justified, and research at last has told us the explanation—namely, the existence in the fats, which are the more valuable for remedying malnutrition, of a health-giving vitamin.

Empirical Experience and Scientific Foundation.

May not this in the future be repeated? If you have high blood pressure, why does your medical man tell you you may take fish and poultry and eggs, but that you must abstain from beef and mutton? I can picture a sceptical and argumentative physiologist saying, "Why? The materials you mention and I am advised to take or refrain from taking are all in the main composed of protein, and surely it is not physiological to

give me such futile advice." My answer to this would be, "True it is not explicable yet on physiological grounds. It is the mere result of empirical experience. But wait a few years, and it is quite on the cards that by that time science may have stepped in and explained the puzzle, just as a few years ago it was able to explain why cod-liver oil is better than olive oil." There is probably in the harmful meats some hitherto unrecognised principle, unrecognised because it is present in minute quantities: or it may be the absence of an indispensable material. It is one of the "next to nothings," but it makes all the difference. "There is one kind of flesh of men, another flesh of beasts, another of fishes, and another of birds." I wonder if St. Paul ever imagined these pregnant words contained more than what he intended to convey by them?

The third topic the lecturer selected to illustrate the importance of attention to apparently insignificant minutiæ was that of the capillary circulation, a subject which rose into importance during the war in relation to "shock." Here, again, especially in some forms of secondary shock where actual hæmorrhage may have been insignificant, but where crushed tissues were the usual accompaniment, it seems inevitable to accept the views urged by Dale and others that it is a toxæmic condition. The poison is produced from tissue breakdown, and operates by reducing capillary tone, so that the blood is stagnant and side-tracked in the capillary lake. Whether histamine, which certainly produces a shock-like state in this way, is the actual poison in secondary traumatic shock, or the only poison, is a question still to be answered. But, whatever the poison is, it is one of which a very small quantity produces a very large result.

In conclusion, I must thank you for the patience you have exhibited in listening to me for so long. I wish I could have chosen a subject, or subjects, more akin to your own specialty. But if anything I have said in my disjointed remarks will help you to realise how widespread is the importance of the infinitely little my task will not have been in vain.

CONGENITAL SYPHILIS.[1]

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IN reopening the discussion on congenital syphilis I propose to follow in the main the line taken by Sir Humphry Rolleston in his suggestive address.[2]

I should like first to make a few remarks on the *prevalence* of the disease and on its type as we see it at the present time. In one of the widely read English books on the diseases of children the author states that congenital syphilis is a *rare* disease. With this, I think, few of us can agree, and if Sir Humphry Rolleston's interesting suggestions as to its relationship to lesions of the endocrine glands can be established as facts the disease will assume an even greater importance than it previously possessed. Possibly the discrepancy of opinion as to the prevalence of the disease may be explained by a gradual change in type.

I venture to suggest that congenital syphilis in London has undergone considerable modification in type during the past 25 years—at least that is my personal experience. The number of infants with frank manifestations of syphilis, skin eruptions, rhagades, condylomata, &c., is less than it was. This does not imply that the case-frequency of the disease has diminished, but that there has been a gradual change of type, and it seems to have become increasingly rare to see the syphilitic infant as described in the text-books. It is true that I do not now see the same number of infants as I did 25 years ago and allowance must be made for this. Also many syphilitic children are sent to skin departments, who in former years would have been treated on the medical side of a hospital. But from inquiries made, there would appear to be grounds for believing that the type of disease in infants as it is seen at present in London does not seem to be so severe as formerly it was. This might be explained in two ways: (1) that the infection is of a milder type: or (2) that resistance to the infection is gradually increasing or changing in some way. It would be of value to have information as to the experience of others on this point.

Following the line of discussion laid down by Sir Humphry Rolleston, I propose to confine my remarks to three points: (1) the Wassermann reaction; (2) the influence of congenital syphilis on other diseases; (3) the influence of congenital syphilis on certain organs, particularly the kidney.

1. *Wassermann Reaction.*

There can be little question at the present time as to the value of the Wassermann reaction as carried out by a competent pathologist. Sir Humphry Rolleston, Dr. L. Findlay, and Dr. D. Nabarro have already discussed this from different points of view. It is generally agreed that a positive reaction in a child, either with or without stigmata, should indicate the necessity for active treatment which should be continued until the reaction becomes negative. A negative reaction, whether as the result of treatment or not, does not necessarily mean that the disease has died out. Both in children and adults one repeatedly sees cases in which a definitely positive reaction becomes negative after treatment and again becomes positive after lapse of time.

A negative reaction may be present in the following circumstances: (1) infection has not been incurred; (2) the infection may have completely died out, though it may have caused pathological changes or disturbance of function in various organs; (3) spirochætes may be lurking in a quiescent state in some tissue or organ of the body, antibodies not being produced; (4) the spirochætes may have undergone some change of state, such as a granular stage, which was referred to by Dr. A. Routh.

As to the value of a provocative dose of salvarsan in cases giving a negative reaction, I have not had a sufficiently large experience, but I may say that not in a single instance have I seen a positive reaction follow a provocative injection. (It will be interesting to hear the experience of others on this point.)

Sir Humphry Rolleston made a valuable suggestion in pointing out the advisability of examining in doubtful cases the Wassermann reaction in both blood and cerebro-spinal fluid. There can be no doubt as to the importance of this procedure, though it is more difficult to carry out with children than with adults, as anæsthesia so often has to be employed in the young. Personally I have never met with a positive reaction in the cerebro-spinal fluid of a child in which the blood reaction was not also positive.

The problem of the Wassermann reaction cannot be solved by the clinicians, and must be left in the hands of the laboratory workers for much further investigation.

2. *Congenital Syphilis and its Relation to Other Infective Disease.*

Resistance to infection is lowered in syphilitic children, especially in the first few years of life. This is generally recognised as regards the acute infections. With these, however, I do not intend to deal, but to confine myself to the association of syphilis and tuberculosis. These diseases may be regarded as the two commonest chronic infections of infancy and childhood, and it would be surprising if they were not frequently met with in the same subject. At the same time I do not think the association of these diseases is sufficiently recognised. Lymphadenitis is the form of tuberculous disease I have seen most frequently in syphilitic children, mostly affecting the cervical glands, which in some cases had been treated by operation. The cases presented the characteristic appearances of tuberculous glands: caseation, skin involvement, &c. The interesting point about these cases in which syphilitic stigmata had been previously overlooked was the very marked improvement which followed active antisyphilitic treatment. Two cases in older children which I saw with

[1] A paper read before the Section for the Study of Disease in Children, Royal Society of Medicine, on March 16th, 1921.

[2] THE LANCET, March 5th, p. 471.

Dr. H. G. Adamson had enlarged cervical glands (with partial excision in one case) and exhibited cutaneous rashes of the tuberculide variety described as Bazin's disease (dermatitis scrophulosorum induratum). The Wassermann reaction was positive in both. Anti-syphilitic treatment brought about a marked improvement in the tuberculous glands and the skin lesions which had not been affected by other forms of treatment. The same improvement, as the result of treatment of the syphilis, may occur in syphilitic adults suffering from pulmonary tuberculosis.

I mention these facts in order to draw attention to an association of disease which, I think, is often overlooked. In tuberculous cases in which the family history is suggestive of syphilis or in which stigmata are present, however slightly, the Wassermann reaction should be employed. Treatment of the syphilis may bring about a far more rapid improvement of the tuberculous lesion than would be possible without it.

3. *The Influence of Congenital Syphilis on Certain Organs of the Body, especially the Kidneys.*

One of the most striking features of congenital syphilis is the widespread nature of the lesions it produces. No tissue or organ of the body is immune. The internal and external secretory organs are those with which we are now concerned, and each one of these is liable to undergo definite pathological changes which have been fully described. Sir Humphry Rolleston suggested that the changes in the endocrine glands brought about by congenital syphilis may be responsible for many and varied conditions, such as dyspituitarism, some of the obscure bony diseases, lipodystrophia, &c. With the means at our disposal it seems equally difficult to prove or to disprove this point. In the great majority of cases of such diseases of the endocrine glands the Wassermann reaction is negative and stigmata are absent. But damage may have been caused by a syphilitic infection which has died out and which later may bring about a diminution of activity of the affected gland or glands. But further evidence must be brought forward before we can ascribe a syphilitic origin to the impaired functions of these glands.

We are perhaps on more secure ground when we consider the external secretory organs, especially the liver and kidneys. With the liver I do not propose to deal as probably the changes due to syphilis in this organ have been more fully investigated than those in any other gland. It is somewhat remarkable that comparatively little investigation has been made as to the early and late effects of congenital syphilis on the kidneys.

Sir Humphry Rolleston has suggested that the extensive renal changes found in the group of cases associated with dwarfism or infantilism are due to syphilis. The general consensus of opinion at the present time would seem to be opposed to this view. I might mention that the last case of this description brought by me before the Royal Society of Medicine gave a negative Wassermann reaction in both the blood and cerebro-spinal fluid.

It might be urged that the kidney lesions are due to a syphilitic infection which has died out. Against this I would point out that the changes in the kidneys are always very marked and indicate some infective or toxic agent of considerable virulence. Had syphilis been the cause one would expect other organs to have been affected to a greater or less degree, whereas it is significant that the kidneys alone exhibit changes, except for the secondary changes in the cardio-vascular system.

The morbid changes found in the congenital syphilitic kidney may be briefly summarised as follows:—

1. In the fœtus—stillborn at term, and abortions. In these there is often evidence of arrested development. Groups of cells of embryonal type surrounded by normally developed tissue and a varying degree of small-cell infiltration of the cortex.

2. In infants. Similar changes may be present, but sclerosis may have begun. These areas of infiltration adjoining zones of proliferating connective-tissue cells and bands of fibrous tissue. Queslier[3] states that in most cases the lesions, whether old or recent, are arranged as islets with normal areas between them. They are situated mostly in the cortex, and the kidneys are often unequally affected.

3. In older children the sclerosis is more diffuse and the capsule is adherent; the weight of the kidneys is generally unequal and is diminished.

This is a very brief summary of the more severe types of renal disease due to congenital syphilis; it is only reasonable to believe that there are milder degrees of involvement. Also, as in the case of the liver, as the result of treatment recovery may take place, but the organs may be rendered unduly liable to disturbance later on in life by comparatively slight causes. Rose Bradford and others have suggested that cases of so-called idiopathic nephritis may be due to syphilis as a predisposing cause. If this be true, the influence of syphilis may be explained by the supposition that the spirochætes, although they have died out, have left behind a damaged organ or one which is peculiarly susceptible. A mild attack of one of the specific fevers, such as varicella, in a child known to be syphilitic may be followed by an acute nephritis.

Hutinel[4] has drawn attention to the vulnerability of the kidney in congenital syphilis, and has pointed out the liability to relapse which these cases of nephritis may exhibit. In some the exciting cause may be a slight attack of tonsillitis or of impetigo. Syphilis may be a factor in some of the not uncommon cases of intermittent albuminuria of childhood. As in the case of the liver, there may be a long latent period (during which the spirochætes may be present but inactive), and in these signs of nephritis make their appearance about the time of puberty as the result of some other infective or distributing cause which may rouse the spirochætes again into activity.

Time will not permit further consideration of these clinical manifestations, but my object is to draw attention to the very important relationship congenital syphilis may bear to kidney disease, and to urge that the necessity of determining whether syphilis is a factor should be borne in mind in dealing with doubtful cases of renal disease in children.

The *lungs* also may be affected by congenital syphilis. The association with tuberculosis has been referred to, and I will say no more on this point. Pneumonia alba is a rare massive condition of the lung found in newborn infants, and so far as I know has no special clinical interest. But syphilis may also give rise to a slighter degree of infiltration compatible with longer life, which may lead to pulmonary fibrosis and, according to Still and others, to bronchiectasis. It may well be that in cases of latent syphilis an attack of broncho-pneumonia or acute bronchitis may stimulate the resting spirochætes into action and fibrosis or bronchiectasis ultimately result. It would be interesting to know what proportion of cases of fibrosis of the lung give a positive Wassermann reaction.

Conclusion.

In conclusion, a few words about *treatment*. It seems to be generally agreed that intravenous injections of one or other of the modern arsenical compounds should be combined with the administration of mercury either by the skin or mouth. I have been impressed on several occasions with the small doses of mercury given by the mouth by some practitioners. Infants and children are remarkably tolerant of this drug, and I do not think that the best results are obtained unless comparatively large doses are given: beginning with $\frac{3}{4}$ gr. doses of pulv. hyd. c. creta twice daily, then thrice, and gradually increasing this up to $1\frac{1}{2}$ gr. thrice daily. This should not be followed by any ill-effects. My late colleague, Dr. Eustace Smith, was in the habit of giving considerably larger doses than these. Should the drug cause diarrhœa, as it may do, though rarely, when first given, an equal quantity of aromatic chalk powder combined with it will prevent any looseness of the bowels.

[3] Gaz. des Hôp. civ. et mil., 1920, pp. 1016–1019.
[4] Hutinel: Paris Médical, 1919, p. 65.

POST-SALVARSAN JAUNDICE.

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DATING from October, 1920, a small epidemic of jaundice following treatment of syphilis by novarsenobillon has been noted in the Rhine army. The first case of the series died five days after admission to hospital, and was diagnosed acute yellow atrophy at the autopsy. Several more cases, clinically similar, were admitted shortly after this occurrence, and I was led to examine for evidence of hepatic disturbance and acidosis. The findings were so constant, had so much bearing upon prognosis and treatment, and were so different from the findings in jaundice from other causes that I think they may be of interest.

The series comprises 24 cases of "914" jaundice, and as controls 15 cases of jaundice in patients who were non-syphilitic and had not had any arsenical treatment. I do not propose to discuss the exciting cause of the jaundice, for that has been considered already by several observers, who conclude that it is the arsenical radicle of novarsenobillon. In the literature at my disposal there is only one dissentient on this point, E. G. Ffrench,[1] who concludes that the jaundice is due to syphilis itself in some cases, and that it occurs with some frequency in patients who have received no "914" or other arsenical preparation. However, H. D. Rolleston[2] states that jaundice in secondary syphilis is rare, and quotes figures of Werner and Goldstein showing that jaundice occurs only 77 times in 23,261 cases of syphilis before the introduction of salvarsan. Nicaud,[3] G. E. Strathy, C. H. V. Smith and B. Hannah,[4] and R. Hallam,[5] conclude that the jaundice is due to arsenic. Moreover, the jaundice of secondary syphilis is said to be hæmolytic in type[6]; Nicaud[7] determined the fragility of the red blood corpuscles in a series of his cases, and found an increase of resistance; in two cases of the present series I tested the fragility and found definite increase. The treatment of jaundice due to syphilis is that of syphilis (Rolleston); in "914" cases further exhibition of arsenical preparations aggravates the condition. Moreover, if the condition were due to active syphilis a positive Wassermann reaction should be present; this was not found to be the case in the present series. It has not yet been proved whether the toxicity is due to arsenic properly combined as novarsenobillon, or whether it is due to some arsenical impurity; Hallam[8] could find no impurity in the samples supplied to him in his series.

No case of this jaundice appeared during the period March–September, 1920. The occurrence of the epidemic coincided with the onset of cold weather. The explanation of this is probably twofold: (*a*) the seasonal incidence of afebrile jaundice has been shown to reach its maximum in the winter months,[9] and (*b*) a heavier burden is thrown upon an embarrassed liver by the winter diet rich in fats and proteins. The time of onset of symptoms relative to the dosage of "914" received shows no difference from what has previously been observed. The smallest total dosage of "914" in this series was 4·05 g., the largest, 12·15 g. The time of onset after the last injection varies from one day to 17 weeks, the average being 10 weeks. Nicaud[10] divides "914" jaundice into early and late types—that is, occurring soon after small or late after large dosages. He came to the conclusion that the early cases had a more serious prognosis. In this series such a division could not be made; some of the late cases were mild, some severe, and vice versa.

The investigations made include clinical findings and narration of symptoms, as these differ from those found in catarrhal jaundice, and are therefore of importance in differential diagnosis. The urinary investigations comprise examination of the amount, acidity, presence of albumin, casts, sugar, acetone, deposit of leucin and tyrosin, bile pigments and acids, urobilin, percentage of urea, estimation of ammonia, and the ammonia-urea nitrogen ratio. The diastase was estimated in each case from time to time. These examinations were made daily until convalescence was established. All the quantitative and most of the qualitative examinations were made by myself with the same apparatus throughout.

Morbid Anatomy.

In brief, the morbid anatomy appears to be a hepatitis leading to fatty degeneration (v. Nicaud's early autopsy[11]), followed by cell death and compensatory fibrosis of periportal distribution. The fibrosis would appear to be responsible for the further atrophy and shrinkage of the liver. Next in severity to the liver the kidneys are concerned, and show a marked degeneration and atrophy of the tubular epithelium. Fatty degeneration of most tissues is present. Hæmorrhages into brain, lungs, pleura, pericardium, and peritoneum are common in fatal cases. The liver shrinkage in life was demonstrated in 30 cases by X ray measurement.[12] In addition, Strauss[13] describes ascites in one fatal case.

In an early case it would be expected that a normal-sized, or rather enlarged, liver would be encountered, the enlargement being due to one or more of the following conditions: vascular engorgement, fatty degeneration, or small-celled infiltration; acidosis should be present from defective protein metabolism. As the condition progresses to convalescence or death, shrinkage would result from diminution of the hepatitis or further atrophy. It will be seen in the next section that these conceptions are justified.

Symptoms.

The presenting symptoms as compared with those of catarrhal jaundice appear in Table I.

TABLE I.

Type.	No. of cases.	Nausea.	Vomiting.	Headache.	Epigastric pain.	Anorexia.	Sore throat.	Pruritus.	Epistaxis.	Jaundice.	Dimness of vision.
		%	%	%	%	%	%	%	%	%	%
"914 jaundice" ...	24	33	22	41	58	45	9	13	0	55	4
Catarrhal jaundice	15	67	53	33	44	53	0	16	0	48	0

The character of the symptoms in the two classes show no marked differences, with the exception of abdominal pain, which in the "914" group showed no relationship to food; in three cases, all showing definite evidence of liver enlargement, the pain was dependent upon posture, being aggravated by lying upon the left side. The abdominal, just as the cephalic pain was not well localised. Shoulder pain was not observed. Dimness of vision occurred in the fatal case three days before death.

Clinical Findings.

The clinical findings in the two groups appear in Table II.

TABLE II.

Type.	Pharyngitis.	Desquamation.	Palpable spleen.	Large, palpable liver.	"Tender" liver.	Epigastric tenderness.	Icterus.	Erythema.	Somnolence.	Diminution of ankle-jerks.
	%	%	%	%	%	%	%	%	%	%
"914"	9	30	5	38	33	50	100	9	22	9
Catarrhal	0	7	13	7	13	27	100	0	0	0

Pyrexia was not observed; the one fatal case showed a subnormal temperature. The skin desquamation affected chiefly the extensor surfaces of the limbs; in a few cases the trunk, especially the chest, showed scaling; there was no associated dermatitis.

Condition of liver.—In the "914" group the liver was definitely palpable and enlarged in 38 per cent. of the cases; the real percentage is certainly higher, for the pain evoked by palpation was so severe, or caused so much boarding of the abdominal muscles, that the attempt was given up. In all these cases the superior liver dullness was normal and the consistence of the liver was distinctly hard, in some cases giving the

impression of wood; in about one-third of the cases there was pain or discomfort, as the sharp lower edge slipped over the palpating thumb (procédé de pouce). In one case there was definite evidence of a small-sized liver; in this case fatty casts were found in the urine. In an important percentage of the "914" group the liver was enlarged and altered in consistence.

The *erythema* noted was similar to that observed by Sicard.[14] Absence of Achilles jerk is regarded by Sicard as an important early sign or arsenical neuritis; diminution on one side was noted, no complete absence of ankle-jerks occurred. The eye-grounds of several severe cases were examined by the ophthalmological specialist, Captain Pringle, R.A.M.C., who found nothing abnormal. The liver condition changes with the progress of the case; in three cases only did the enlargement persist in convalescence, and these cases were three of the most severe. When enlargement persists it may be assumed that the cirrhotic changes are permanent.

Somnolence was noted only when distinctly more marked than the depression and lethargy common in other forms of jaundice. The one fatal case developed somnolence after two days in hospital; it was accompanied by delirium and rapidly deepened to coma. The same somnolence was noted in the earlier cases of the series by the M.O. in charge of the medical wards, who directed my attention to them as possible cases of acute yellow atrophy. Instructions were then sent out to all M.O.'s of units to watch for cases of jaundice in men who had had treatment for syphilis, and to send cases to hospital when discovered. The result was that, with one or two exceptions, the later cases were much milder, and somnolence was not noted again. This somnolence, I suspected, was due to disturbed hepatic metabolism; I accordingly examined for a resulting acidosis. Strathy[15] suspected acidosis, but gives no figures. The estimation of acidosis was accomplished by comparing the ratio of the ammonia nitrogen to that of the urea. According to Panton,[16] "A reliable guide to the extent of the acidosis can be obtained from a comparison of the ammonia and urea nitrogen." Samples of normal urine, of urine of diabetes, of catarrhal jaundice, and of patients who had had much "914" treatment were examined, and the results of the catarrhal cases are included and are referred to as "jaundice controls."

Urinary Findings.

It is regretted that no urinary examination was made in the fatal case; this case occurred in my absence. To detail the findings in each case would require too much space; amongst other examinations the ammonia-urea nitrogen ratio was determined 500 times. Many of the results may be summarised and dismissed briefly. The urine of each patient was collected in a receptacle stored in a cool place; all examinations were made with complete 24 hours' specimens.

Amount.—Usually diminished, the average being 45½ fluid ounces during the first complete 24 hours. The diminution appeared to be proportionate to the severity of the case. On the fifth day the urine averaged 59 fluid ounces. Jaundice controls (catarrhal or apyrectic jaundice) showed like amounts, 45 ounces on admission, increasing to 66 ounces on the fifth day.

Acidity.—High on admission, requiring 34·5 c.cm. decinormal caustic soda per cent. for neutralisation. This diminished rapidly, and on the fifth day averaged 15·5 c.cm. Controls averaged 22 c.cm. per cent. on admission, and 14·1 c.cm. on the fifth day.

Albumin.—Present in 14 per cent. of the cases. It disappeared in convalescence, was slight in amount, never more than a trace being noted. The jaundice controls showed no albumin.

Bile pigment.—Gmelin's test was positive in 92 per cent. of the cases on admission.

Urobilin.—Present in the 8 per cent. of the cases in which bile pigment was absent. Schlesinger's test and the test of Morel and Policard[17] were applied in each case. Urobilin was generally found present several days after bile pigment had disappeared. Urobilin, unaccompanied by bile pigment, was not found in the catarrhal control, though its occurrence has been noted.[18]

Bile acids.—Hay's test was performed in every case until the severe and mild cases alike failed to give a positive reaction.

Deposit.—Detailed notes were not kept in all cases. Sediment usually consisted of amorphous urates; uric acid crystals were occasionally, and oxalate crystals were frequently, noted. Pus corpuscles were commonly present, and on three occasions showed well-marked, deeply stained globules with osmic acid. No blood was noted. Oxalate crystals were also found in many of the jaundice controls.

Casts.—Present in 11 per cent.; usually granular or hyaline. Fatty casts were sought in each case, but were found in one only.

Leucin and tyrosin.—Sought in the deposit of each case but never found. Precipitation methods were not employed.

Sugar.—No case showed presence of reducing substances.

Acetone.—Not found.

Urea.—The percentage on admission was high, the average being 2·4 per cent. Jaundice controls averaged 1·68 per cent. In both classes the urea percentage rapidly diminished owing to the special diet given.

Ammonia-urea nitrogen ratio.—The formalin method, as described by Panton, was employed for the ammonia estimation; for the urea the hydrobromite method. For the former 20 c.cm. of urine were taken, and for the latter 4 c.cm. The calculation of the contained nitrogen is simplified by multiplying the number of cubic centimetres of decinormal sodium hydroxide solution used, after adding the neutral formalin, by 14; the number of cubic centimetres of nitrogen evolved is multiplied by 58·33, the latter constant being worked out on the basis that 16 c.cm. nitrogen correspond to 1 per cent. urea.[19] This figure is rather high; 15 c.cm. are given by Plimmer.[20] The division of the former figure into the latter gives the ratio—ammonia nit.: urea nit. :: 1 : x. For brevity the latter figure only is given. On the day of admission the ratio averages 9·35, the lowest being 6·0 and the highest 15·0. "Under normal conditions the ammonia nitrogen is about one-twentieth of the urea nitrogen, and in conditions associated with acidosis it may rise to one-fourth. A rise in the ammonia nitrogen to one-tenth of the urea nitrogen is definite evidence of acidosis."[21] Seventy-one per cent. of the cases show a ratio of less than 10—i.e., one-tenth—on the day of admission. Taking the average of the clinically severe cases, the ratio was found to be 8·1; the average of the cases showing somnolence is 8·0. The average ratio after four days in hospital was found to be 22·0—i.e., one twenty-second. Some of the cases did not show an acidosis on the day of admission, but the ratio of ammonia nit.: urea nit., in some cases dropped below the acidosis level on the second, third, or fourth day. At some time during the acute stage of the illness acidosis was determined in 80 per cent. of the cases, and was present in all but the slight cases.

In the jaundice controls the average ratio on admission was 16·3. After five days it averaged 22·0. In only one case did the figure fall below 10·0, and this was regarded as being due to ammoniacal fermentation, for the acidity was very low, and triple phosphates were found in the deposit. It should be noted here that all the cases, controls also, were treated in the same ward, had the same diet, and the same medicinal treatment, with the exception that in one or two of the catarrhal group pill fel bovini was given t.d.s.

I am aware that catarrhal jaundice, in some schools at least, is no longer regarded as merely a symptom-complex brought about by the damming up of bile by an acute stenosis of the bile-ducts due to catarrhal cholangitis, but as a lesion of the hepatic cells, which interferes with the hepatic function as a whole.[22] But the figures given above appear to show that the hepatic function is much more severely embarrassed in the "914" cases.

Urinary diastase.—This was measured partly to determine whether there was evidence of pancreatic involvement, and partly because it was considered possible that differential diagnosis in catarrhal cases might be facilitated; for a pancreatic origin in certain cases of catarrhal jaundice is considered by Rolleston. An associated catarrh of the duct of Wirsung might accompany that of the common bile-duct. The Wohlgemuth technique as described by Wallis[23] was followed; in all 140 estimations were made. Figures on the whole show an increased amount of diastase; in 42 per cent. of the cases the figure reached or exceeded 40; the highest figure noted was 100 units, which fell to 20 units within seven days. Figures of 50–60 units were fairly common. In 19 per cent. of the cases the figure dropped below 10 units at some time; the lowest figure reached was 6 units, but this is regarded as the lowest normal limit by Maclean and Russell.[24] The remaining 39 per cent. gave normal diastase figures throughout the illness—i.e., 10–30 units. This increase is of interest, as it may demonstrate pancreatic involvement or may be regarded as further evidence of hepatic embarrassment; for an increase of the diastase has been found constantly in the toxæmias of pregnancy,[25] in

which condition hepatic involvement is generally conceded. In all cases where the diastase showed normal values the figure became normal in a few days. This examination was found to be of little value in differential diagnosis, for a similar increase, varying between 40 and 80 units, was found in 28 per cent. of the jaundice controls; this is further evidence for the presence of pancreatic changes in catarrhal jaundice.

The urinary findings justify the opinion that a lesion of the liver tissue is present and that an acidosis results; for 80 per cent. of the cases showed evidence of acidosis at some period of the illness. Moreover, the degree of acidosis was proportional to the severity of the clinical findings; also the acidosis disappeared as the other symptoms subsided.

Course of the Illness.

The average of the cases shows that the period spent under close observation was 22 days; about three days added to this gives the average time spent in hospital. The last day after admission on which acidosis was present averaged the fourth day. No case was discharged from hospital until he had been on the full diet for a week, and had performed some light duty. So far no relapses have occurred.

Prognosis.

The case mortality is difficult to determine. From the literature quoted I have been able to obtain figures in 141 cases; amongst these 23 deaths are recorded, giving a mortality of 16·3 per cent. This figure may be too high, for, possibly, some early deaths, not due to hepatitis, are included. On the other hand, it is highly probable that some of the fatalities have been described as acute yellow atrophy, for this condition, formerly a great rarity, appears to be fairly common at present, and comparatively numerous cases are described in the current European literature. The present series, which is not included in the above figure, shows a mortality of 4·1 per cent.—i.e., one case, the first of the series, who did not receive any specific treatment. Series of cases show very variable mortality rates; both in Hallam's and Nicaud's series no deaths are recorded.

Treatment.

All the cases were kept in bed until chicken diet was ordered. Fluids were given freely, especially imperial drink. The only routine drug treatment given was sod. bicarb. 60 grains t.d.s. Laxatives were ordered when required. For 24 hours after admission full diet and no treatment was given in order that the gravity of the case could be determined. After this the patient was put on the following diets, one after another, as the urinary and clinical findings improved: (1) starch diet: in this proteins and fat are excluded, the diet consisting of bread, fruit, boiled vegetables, milk puddings (made with very little milk), jelly (as a protein sparer), and tea without milk; (2) fish diet: the addition of boiled fish being made to the starch diet; (3) fish and eggs: one or two eggs per diem in addition to the fish; (4) chicken diet: the ordinary chicken diet of the hospitals, the patient being allowed out of bed; (5) ordinary diet: when this was given the patient was encouraged to help in the ward. It may here be noted that the recovery of the jaundice controls appeared to be accelerated by this treatment.

My thanks are due to the D.D.M.S., Rhine Forces, for issuing instructions to all M.O.'s of unit and otherwise facilitating the investigations; also to Major E. F. Bashford, O.B.E., R.A.M.C. (T.C.), D.A.D. Pathology, for permission to perform examinations in the laboratory.

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GENERALIA ON THE LOUSE PROBLEM AT THE WESTERN FRONT.

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IN order to round off my records of the results of about three and a half years' continuous work, mostly in Flanders, on various aspects of the louse problem, I publish the following few remaining generalia from my notebooks. They are somewhat belated, but many post-war duties have prevented their collation.

Viability of Lice.

Through the kindness of Mr. A. W. Bacot, of the Lister Institute of Preventive Medicine, a supply of nits and about 300 lice of all ages were forwarded to me in France for certain experiments. The eggs were attached to small pieces of khaki cloth upon which the insects were at liberty to cling and crawl. All were dispatched in a round wooden pill-box $1\frac{1}{4}$ inches in diameter and of the same depth. The insects had been given opportunity to feed at about 4 P.M. on Oct. 22nd, 1918, and were then packed and placed in the post. They reached the laboratory in France on Oct. 29th, and, with the exception of a few which were set aside for viability experiments, were allowed to feed at 2 P.M. The survivors which fed numbered 138—approximately one-half of the original number dispatched—were of all ages except, of course, newly hatched specimens. Thus a fast of 6 days 22 hours apart from the human host, at an unknown temperature in the post, was well within the powers of the insects. Similar observations to this have been recorded by many observers, but the two following experiments present new features.

Experiment 1.

Oct. 22nd, 1918, 4 P.M.: Lice given opportunity to feed by Mr. Bacot.
Oct. 29th, 11.30 A.M.: 2 nymphs and 1 larva in second instar separated and placed in incubator at 28° C.
Oct. 31st, 10 A.M.: All fed after a little effort, one standing on its head to do so. 2.30 P.M. and 6.30 P.M.: All fed; kept in an incubator at 28° C. between feeds.
Nov. 1st, 9.15 A.M.: Only 1 nymph fed; the second nymph still alive, but too feeble to feed though given 30 minutes to do so; killed. Larva dead. 6.30 P.M.: Survivor fed.
Nov. 2nd, 10 A.M., 3 P.M., and 6.45 P.M.: Survivor fed.
Nov. 3rd, 9.15 A.M. and 6.30 P.M.: Survivor fed.
Nov. 4th, 11.15 A.M.: Survivor did not feed; incubator had failed, and louse exposed to room temperature for several hours. (Temperature not noted.) 6.30 P.M.: Appears nearly dead—ruptured.

Experiment 2.

Oct. 22nd, 1918, 4 P.M.: Lice given opportunity to feed.
Oct. 29th, 11.30 A.M.: 3 nymphs and 2 larvæ in the second instar separated and placed in incubator at 28° C.
Oct. 31st, 10 A.M.: Lice removed and kept on bench at about 15° C.; still able to crawl feebly. 5.15 P.M.: Given opportunity to feed; the 3 nymphs settled and fed almost immediately; one larva was more tardy in feeding, while the other crawled around feebly before settling, and did not feed till some time after; the larvæ were the feeblest of all. Subsequently, between feeds, kept in incubator at 28° C.
Nov. 1st, 9.15 A.M.: 4 fed; one larva failed to feed after 30 minutes and subsequently died. 6.30 P.M.: 4 fed.
Nov. 2nd, 10 A.M.: 3 nymphs fed. The larva fell into a bowl which had been wiped with strong cresol and never fed afterwards. 3 P.M. and 6.45 P.M.: 3 survivors fed.
Nov. 3rd and 5th: All fed twice a day, morning and evening.
Nov. 6th: All appear perfectly healthy; added to stock.

These experiments and observations show: (1) that nymphs and larvæ in the second instar may survive a fast and separation from the human host of 9 days 2 hours—$6\frac{2}{24}$ days in the post, $1\frac{2}{24}$ days in an incubator at 28° C., and $0\frac{7}{24}$ day in a laboratory at 15° C.; (2) that, moreover, though very enfeebled after their fast, they still had strength enough to feed and subsequently recover; (3) that this period of fasting and separation from the human host approximates very closely to the limits of endurance of the insects.

These conclusions are of interest because, to my knowledge, no other records show for similar conditions quite such a high viability for the louse. It is of interest, too, that these hardy specimens were nymphs, and presumably about the prime of life.

A Clothing Repair Depôt.

Compared with that of the bug or flea the viability of the louse is very low; this fortunate fact is well illustrated as follows.

In July, 1918, Lieutenant-Colonel Statham, A.D.M.S., Paris Area, took me to the repair depôt for clothing organised by the British Army Ordnance Department in Paris, where Captain Thompson, A.O.D., kindly demonstrated the routine of the institution and, in reply to questions, furnished much interesting information on the infested condition and treatment of the garments received. To this depôt were returned vast quantities of soiled, discarded and salved garments of the British armies in France to be dealt with appropriately. The number of garments received per year was estimated at 2,000,000. Some were only fit for burning, but large numbers were renovated and re-issued for service. During the renovation process the first operation after sorting was the inspection and segregation of those garments which had been excessively highly infested. Such articles showed the usual characteristic appearance—innumerable nits packed like large sand grains along the lines of the seams and the creases, interspersed with lice of all sizes. The next operation was carried out by old women who, by means of knives, scraped the egg masses away from the cloth. The points of interest, upon which the old women and Captain Thompson were most emphatic, are, first, that sorters and scrapers never became infested and, secondly, that they would not have taken on such employment had they felt that there was any risk of infestation. Evidently the period of separation from the human host, an indeterminate period largely spent in transit from the front to the base, was sufficiently long to kill both lice and nits. Such being the case, no special methods of disinfestation were employed, the articles being laundered in the usual way.

This affords an excellent illustration of the fact that practical and extremely valuable services were dependent upon the relatively low viability of the louse!

"*Dangerous Carriers.*"

The proportion of articles scraped varied with the type of garment—e.g., of the riding breeches 60 per cent. were so treated, of the tunics 7½ per cent., and of the underclothing 5 per cent. In drawing any conclusions as to the degree of lousiness of the troops from these figures it should be borne in mind that no records existed of the number of times these garments had been disinfested up the line or of the degree of the last infestation before being discarded. But, taken in conjunction with my studies of the infested condition and the psychology of certain types of soldier tolerant of extreme lousiness, these comments may be advanced. The men who had worn these garments were evidently of this type—I have called them "dangerous carriers"—because no self-respecting soldier would ever permit his clothing to get into such a state either as the result of one huge visitation or from traces of a number of smaller infestations severally combated by disinfestation at various times. He would have scraped it or burnt it himself. Besides, few quartermasters would have refused an issue of new clothing to such cases. The general point of importance which issues is that my estimate that nearly 8 per cent. of infantrymen were "dangerous carriers" has received corroboration in a somewhat curious and unexpected fashion.[1]

A Note on Dissemination.

The relative importance of the various sources of dissemination have been thoroughly discussed elsewhere[2]; but, to recapitulate briefly, it may be mentioned that by far the most important source was the lousy soldier. Blankets, bedding, latrines, dug-outs, &c., were of minor significance. To illustrate the latter point I cite an experience which occurred while I was attached to the New Zealand Division in June, 1916, at Armentières.

This division had but recently arrived in France from Egypt, and I was detailed to give instructional work to it on "flies and mosquitoes." However, opportunity was taken to make certain observations on my special subject. Just previous to departure from Egypt the whole division had been thoroughly and generally disinfested by means of "Hunter's train."[3] The troops were brought practically straight to the Armentières front and certain battalions placed in the line. After about ten days of trench warfare one battalion was brought to the baths and 110 shirts were examined immediately after the men took them off. After the usual experiences with many battalions at many other baths the results were a pleasant change; a large number were louse-free, the average was only 3, and the range from 0 to 20.

Without a complete knowledge of the condition of the men prior to their entering the trenches, it is impossible to state precisely the reasons for this infestation and for its degree; but, to speak generally, the disinfestation in Egypt must have been well done, and the trains, billets, and dug-outs in France must have been only very slightly infested, which latter is the point I wish to make. These facts will appear more striking when one considers the usual condition of troops on going up into the trenches and on returning therefrom to the baths.

Proportion of Men Infested with Crab-lice.

One of the features of the louse problem which I never had full opportunity for investigating as thoroughly as it deserved was that of crab-lice (*Phthirius pubis*). Observations of infestation by such were made at various times, as, for instance, when testing the effects of insecticides upon troops, and led me to believe and state in lectures at the front that these infestations appeared to be of much commoner occurrence among troops in the fighting area than was generally supposed. Until 1918 the data were not considered as sufficiently detailed to warrant publication, but as a striking record was furnished me by Lieutenant Seaton, of the United States Medical Corps, I associate the two best of my examples with his.

1. Out of 88 men from three different infantry regiments of a certain division 4·7 per cent. were found infested with crab-lice (May, 1916).

2. Out of an experimental party of 21 men from seven different field ambulances of a certain corps 14 per cent. were infested (May, 1917).

I have no reason to believe that the condition of these men was otherwise than typical of the general condition of troops in the forward areas at these times. As the result of a meeting with me, in which the louse problem was discussed, Lieutenant Seaton took special pains to investigate the condition in regard to crab-lice of the men of a brigade of British artillery to which he was attached as medical officer. About the middle of September, 1918, he kindly gave me his report. He had physically inspected 850 men while they were on duty in the gun-pits and wagon-lines in the Ypres salient, and found the total proportion of men infested was 35 per cent. This result was based upon observations as to whether crab-lice or nits or both were present on the pubic hairs. Lieutenant Seaton also detected body-lice (*Pediculus humanus* var. *corporis*) co-existing with crab-lice, but was of opinion that the majority of cases were "crab" infestations. Where nits alone were found on the hair he had not taken any steps to ascertain to which species they belonged or whether they were alive or not. He had not classified the cases in relation to their degrees of infestation. To many this result will be somewhat surprising.

The Degree of Infestation of Combatant Troops at various times during the Campaign.

For purposes of comparison the following table, compiled in October-November, 1915, and published in a previous paper[1] is inserted:—

Proportion of men—		Proportion of men—	
Without any lice	4·9%	With 30-129 lice	11·2%
With 1-9 lice	41·9%	,, 130-349 ,, ...	4·9% d.c.
,, 10-19 ,, ...	19·6%	,, more than 350	2·8% d.c.
,, 20-29 ,, ...	14·7%		

d.c. = Dangerous carriers.

In order to test an insecticidal powder a certain division was visited in a rest area during May, 1916; the clothing of 85 men from three different regiments was examined and gave the following result:—

Proportion of men—		Proportion of men—	
With 1-10 lice	67·0%	With 51-100 lice	15·3%
,, 11-50 ,, ...	10·5%	,, over 100 ,, ...	7·0%

During the years 1916 and 1917 I noted the condition of garments on many other occasions whilst engaged for more or less protracted periods at various places in the northern sector on the testing and standardising of methods of disinfestation. The work was carried out

[1] Peacock, A. D.: The Louse Problem at the Western Front, Brit. Med. Jour., May 27th and June 3rd, 1916, and Journal of Royal Army Medical Corps, July, 1916.

[2] A. D. Peacock: Op. cit.

[3] Nuttall, G. H. F.: Combating Lousiness among Soldiers and Civilians, Parasitology, 1918, vol. x., No. 4.

at divisional baths and at the large corps disinfestor at Poperinghe. Other duties prevented me from repeating my methods for obtaining data such as cited above, but I observed sufficient to convince me that these two results would still hold good. My last experiences occurred at a general hospital at a base towards the end of the fighting in October–November, 1918.

During the pursuit of a research on the relation of lice to trench fever I examined the clothing of ten men admitted sick from an adjacent machine-gun depôt. In one case only no lice were found, but there were many hundreds upon another. The lousiness of the remainder varied from 1 to 15 with an average of 6·7. The number of cases examined was certainly small, but, on the other hand, they were not specially selected. Such a condition, however, should not have existed in a highly disciplined depôt provided with a large and efficient disinfector.

I also examined the condition of the clothing of the men who had been wounded in the heavy open fighting of that period. The men, who belonged to diverse regiments and divisions, had usually spent two or three days in the train before reaching the hospital, and still wore their compaigning clothing. Rapid examinations of their garments were made when they reached the disinfector, and invariably showed that very few cases, if any, were louse-free, while many were highly verminous. On one occasion 34 shirts were examined more carefully and showed 11 (34·0 per cent.) louse-free, 13 (37·0 per cent.) with a few lice, while 10 (29·0 per cent.) had varying numbers of insects—50 to some hundreds—upon each of them. This, it should be remembered, resulted from the inspection of one kind of garment only. Repeated visits paid subsequently to the disinfector and more cursory examinations of the garments indicated the same state of affairs. I did not consider it necessary at these latter examinations to go into minutiæ, as my experience in such matters convinced me that the one result already mentioned was sufficiently representative.

These instances show that the pedicular condition of the combatant troops in France at the conclusion of the fighting in November, 1918, was no better than it was in November, 1915, when I obtained the first figures in regard to lousiness. In order to understand how this condition of affairs came about a brief outline of the main features of the anti-louse compaign among the British troops in France may not be without interest.

Salient Points in the History of Disinfestation at the British Western Front.

In planning an anti-louse campaign the first condition to create was a general belief that the louse could be beaten. But among combatant troops of all ranks the fatalistic tradition that the louse is an objectionable but natural and unavoidable fact of war dies hard, and, in the light of the preceding notes, it would seem that the tradition should still hold. But it holds not because the louse has defied investigation by the entomologist or because the rationale for its extermination was never outlined, but because the sound and proved suggestions of research were not followed up in the grand manner. Investigation made it perfectly plain that the louse was not endowed with occult powers, and anyone who followed the course of disinfestation experiment in France and England, and also the literature of the subject, could see that sufficient work had been performed to warrant the initiation of a bold anti-louse campaign at the beginning of 1916. But when convincing experimentation is not backed up by the application of its teachings, instructional work among lousy troops becomes counsel of perfection, and there is little hope of creating the will to defeat the insect enemy. Of course the most effective event, which would have startled the authorities into the necessary activity, would have been an epidemic of typhus at an early date in the campaign. Fortunately, perhaps, this never eventuated, and the menace of typhus as one argument for disinfestation was never of value. The discomfort of lousiness, its effect on men's rest and sleep, and the resultant depression of their physical fitness were never considered poignant reasons for disinfestation, while the more apparent effects of skin diseases, directly and indirectly traceable to lice (as well as the scabies mite) did not make sufficient appeal.

We may now follow the course of the anti-louse campaign, dealing first with the instructional side and then with the experimental. But before doing so I should like to pay tribute to the immense amount of work performed at home by Mr. A. W. Bacot, of the Lister Institute of Preventive Medicine, and Professor G. H. F. Nuttall, F.R.S., of the Quick Laboratory, Cambridge, on the problem, both of whom have assisted me many times. Their influence can only be appreciated by those who took active part in the anti-louse campaign.

(*a*) *Instructional.*—Very little organised instructional work was carried on in France until 1916, when, subsequently to the publication of various articles in the scientific journals, the War Office issued a pamphlet on the louse problem on the Western front. During the winter of 1916–17 army and corps schools of sanitation for medical officers were established, where weekly lectures on the louse problem were given as part of the curriculum. Later similar schools were instituted for non-commissioned officers and men engaged in various services on sanitary duties. In May, 1918, a "Circular Memorandum," a useful brochure on disinfestation, was issued by the Director-General of Medical Services, and a revised edition appeared in August. The practical result of these publications and lectures is difficult to assess. Ideas were disseminated and interest created, but little was accomplished which directly affected the welfare of the fighting soldier up the line. For instance, to the regimental medical officers who attended the schools, men with a thousand other regimental cares, the problem of disinfesting their men was beyond them, as they were totally unprovided with apparatus. Even had they possessed any, such as flatirons, or improvised any, as certain officers of my acquaintance did, the conditions permitted such very limited opportunities for their use that little could be accomplished.

(*b*) *Experimental.*—Consideration of the part played by "insecticides"—palliatives at the best—need not detain us long. Of the many preparations applied to the clothing and body only one emerges as promising—naphthalene. During 1914 and 1915 tests with N.C.I. powder (naphthalene 96 parts, creosote 2, and iodoform 2) showed fair success, but before a routine for its issue and use could be established the supplies failed and all subsequent efforts to obtain naphthalene in large quantity failed. I understand that the reason for such was that the crude product from which it was obtained was required in the manufacture of explosives. Various other products were tried, but were never of any particular value.

The arrangements for the bathing of troops and the disinfestation and laundering of their underclothing in the front areas, though not quite adequate, were generally most creditable, but there still remained the great problem of the disinfestation of outer garments. This was absolutely essential, as the infested khaki and cardigans were among the main sources of louse dissemination; in any routine, if it was to be successful, the salient fact could not be ignored that *all* the soldiers' clothing required repeated disinfestation at frequent intervals.

About the middle of 1915 and for a long period afterwards the usual establishment of disinfestation apparatus per division rarely exceeded one "Foden Thresh" and perhaps two horse-drawn "Threshes." These machines barely served to disinfest the underclothing alone, and a great deal of energy was also dissipated by their being used for blankets, which were minor sources of infestation. Occasionally local conditions were favourable, as at the well-known cloth factory at Nieppe, Armentières. Here, during the summer, autumn, and winter of 1915, one of the huge dye-vats, instead of being used as a bath, was converted into a successful steam disinfestor by the authorities of the 50th Division. Khaki clothing was thrown into it, the lid lowered, and steam turned on from the main pipe which heated the other vat baths. Such adaptations, however, of necessity were the exception in the front area. About this time, too, failing the provision of large appliances, attempts were made at divisional baths to disinfest the khaki by ironing. This method, which was abandoned by the summer of 1916, failed because of the disproportionate amount of space, labour, and expense involved.

Early in 1916, in connexion with their bath and laundry at Neuve Eglise, the Canadian Corps introduced steam disinfesting chambers for treating the outer clothing, and similar chambers were constructed later at Dranoutre and Westoutre. The chambers at Neuve Eglise were heated by steam generated by an old local threshing machine, but as the idea became more generally exploited vertical boilers were provided. Among the British corps this idea made slow headway, and there was an absence of standardisation of disinfestation methods as well as a lack of coördinated effort. This could be witnessed when divisions were

"changing over," as time and again the new personnel from the incoming divisions, after taking over the established bath and disinfestor, allowed a successful routine to lapse owing to unfamiliarity with the idea of disinfestation, let alone with its operations.

At the beginning of 1917, at a laiterie near Poperinghe, a large steam plant of five chambers was erected as a corps disinfestor, the steam being supplied from the two large horizontal boilers of the adjacent laiterie. The main object of this large effort was the disinfestation of the outer clothing of troops attending the three corps baths in Poperinghe. In this scheme the clothing was returned to the troops after 24 hours, the men meantime being accommodated with special suits from the corps' stock. In addition, troops were brought to the laiterie and all their clothing treated while they waited in bath gowns in marquees near by. Owing to an attack of trench fever and removal from that area I was never able to obtain figures to illustrate its beneficial effects upon troops which repeatedly used the institution.

Such efforts as these in the front areas undoubtedly did a great deal of good, but in a sporadic fashion, because three factors operated which prevented their being exploited to the full. These factors were (1) insufficiency of disinfestors, (2) consequent inability to give adequate repetition treatment to the same troops, and (3) as instanced above, lack of general understanding of the idea and methods of disinfestation.

It is a curious fact that in my experience the rest areas which, one would think, were the ideal places for the wholesale cleaning of troops were almost totally unprovided with plant, while the regimental routine did not provide for "resting" troops any opportunity for a thorough de-lousing and clean-up.

In May, 1917, I was recalled to England, and in collaboration with Captain J. Taylor Grant, R.A.M.C.(T.F.), was instructed to work at various aspects of disinfestation, the principal objects being (1) to ascertain the value of sulphur dioxide generated by the Clayton gas apparatus as a method of disinfestation, and (2) the devising of a portable apparatus for hot-air disinfestation. The results of the greater proportion of this work are incorporated in Professor Nuttall's "Combating Lousiness among Soldiers and Civilians."[3] About this time Captain Jacobs, R.A.M.C. (T.F.), and Major H. Orr, C.A.M.C., were working out their hot-air disinfestors in France, which resulted in both types being completed early in 1918.

Comparison of Types of Disinfestor.

Now in most of the appliances mentioned heretofore there is an obvious drawback; they are only of service in stationary warfare. My experience of the conditions in France and also of the experimentation carried on there and in England decided me (in common, I dare say, with others) that the exemplar of disinfestors for campaigning still remained to be evolved. The great qualification demanded of it is suitability for both stationary and mobile warfare, but before making suggestions on this point it would be well to summarise the qualifications of the most useful devices in use during the war. Full details of their value are quoted in Professor Nuttall's work.[3]

Apparatus.	*Advantages.*	*Disadvantages.*
Horse-drawn Thresh. Foden steam lorry Thresh.	Mobile; efficient.	Heavy; compared with Canadian steam disinfestors, uneconomical in working; unsuitable for leather articles;* somewhat expensive.
Steam Canadian disinfesting chambers.	Efficient; economical.	Stationary; unsuitable for leather.
Hot-air chambers—Jacobs or Orr types.	Efficient; economical; suitable for leather.	Stationary; the Orr and Orr-Grant types limited to one type of fuel—coke.
Hot-air chambers—Orr-Grant type.		
Canvas hot-air hut; Grant-Peacock type.	Mobile; cheap; readily erected.	Limited to one type of fuel—coke.

* Leather strappings on riding breeches are a nuisance in disinfestation. They are not really essential, and cloth strappings can be substituted.

Towards the end of 1917, if not before, I forwarded the suggestion that two suitable types of disinfestor could be constructed on the following simple lines:—

Type A, for transport on a horse-drawn wagon.—A large box, asbestos lined, about 5 ft. long, 3 ft. broad, and 4 ft. high, capable of holding 20 suits of three garments (tunic, trousers, and cardigan), or equivalent load in other garments, &c., modelled after the pattern of the Canadian huts; steam to be led from a small, strong, vertical boiler capable of generating it at 15 pounds pressure.

Type B, a steam-wagon disinfestor.—Two boxes as indicated in Type A, fitted on a steam lorry, steam to be obtained from the boiler of the lorry. These types would combine the good points of the Thresh machines and the Canadian steam chambers. They would have the mobility of the former with the additional advantages of being cheaper, lighter in weight, far more economical in steam, and capable of using coal, coke, or wood. I would suggest that the establishment of such be one of Type A per battalion, pro rata for other troops, while the larger type could be employed at baths, large hospitals, and concentration camps. They could be incorporated into any schemes of bathing and even, if necessary, their steam utilised for the heating of bathing water.

Steam-train disinfestors.—In view of the great success attending what has been called "Hunter's train" in the East, another idea suggests itself—why not use a lighter type for narrow gauge lines which tap country not accessible by larger plant? Of course, the type of mobile disinfestor employed would depend upon the nature of the country and campaign; obviously, for example, trains would be most suitable for desert warfare.

Conclusion.

This very brief account of the antilouse campaign at the Western front may be brought to a conclusion by reference to one of the most interesting and remarkable events in its history—in March, 1918, trench fever was proved a louse-borne disease. This provided a most convincing and stimulating argument for disinfestation, but the new spirit moved too late. The German offensive caused the destruction of much of our plant, while our counter-offensive and mobile warfare precluded the use of the surviving apparatus.

To those of us who endured lousiness and who worked on the experimental side of the problem the foregoing history brings melancholy reflections.

ACUTE PUERPERAL SALPINGO-PERITONITIS.*

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A QUICK succession of cases presenting the same or similar conditions affords a special opportunity for study and comparison: hence I venture to bring forward a record of personal observations of a disease of which I have been fortunate enough to see and treat several examples during the last three years.

A word is necessary to explain the name I have adopted for a well-known condition. "Salpingitis" is not enough, while "salpingo-oöphoritis" is often wrong, especially early in the disease; but "salpingo-peritonitis" lays due emphasis on the essential peritoneal factor in the pathology and treatment. Further, I am chiefly concerned with acute salpingitis, occurring in a previously healthy tube, which appears to me to be more common than is generally supposed, and which gives rise to the characteristic clinical picture which I wish to describe.

If the condition is an exacerbation of previous tubo-ovarian disease such chronic changes must of necessity have been slight for pregnancy to have occurred, and any such exacerbation largely takes on the form of an acute suppurative salpingitis of recent origin. Acute puerperal salpingitis differs in so many aspects from that of non-puerperal origin, particularly as regards the physical signs and treatment, that it should be considered as a separate disease.

Anatomical Conditions in the Puerperal State.

The general physiological state, together perhaps with an altered resistance to infection, are important factors distinguishing the puerperal from the non-puerperal woman, but the fundamental difference

* A paper read before the Section of Obstetrics of the Royal Society of Medicine, on March 3rd, 1921.

which is responsible for its individual consideration is anatomical; it lies in the peculiar anatomical conditions of the abdomino-pelvic organs during the first fortnight after labour. The tubes are essentially abdominal, not pelvic, organs; and they are usually affected before they have reached their normal positions in the pelvic cavity. By the end of the first week, when symptoms generally manifest themselves, the tubes lie at or just above the pelvic brim, in relation with the iliac vessels; while the ovaries are placed below, just within the pelvis, and applied to its lateral walls. The former are, therefore, outside the limitation of the pelvic basin, and are surrounded by coils of small intestine, which considerably alters the results following escape of pus from the abdominal ostia, as compared with a similar tubal condition where the tubes are lodged within the pelvic cavity. In the latter case, as is well known, the resulting abscesses are strictly circumcribed in the pouch of Douglas, and the whole inflammatory area tends to be roofed in and delimited by the omentum or small intestine. General extension of the infection into the abdominal peritoneum is unusual, and the symptoms and signs are correspondingly localised. Resolution is a frequent result; the patient recovers without operation, and may regain a fair state of health. But in puerperal salpingitis conditions are different. The abdominal situation of the tubes is the cause of an abdominal as opposed to a pelvic peritonitis, inasmuch as it allows the outpouring of pus amongst the coils of small intestine at or just above the level of the sacro-iliac joint; herein lies the essential difference between the two varieties of salpingitis, a difference which is manifest as much in the physical signs exhibited as in the treatment required. Further, the hyperæmic condition of the uterus and appendages during the puerperium will also have its share in modifying the gravity of the symptoms and the rapidity of their course.

The involution of the uterus appears to be arrested in all these cases at a point at which the fundus extends about half-way between the symphysis and the umbilicus. This may be due to the presence of infection within its cavity or possibly to a neighbouring active suppuration in the tubes, but the important result is that the tubes are maintained at their high level at or above the brim of the pelvis for a considerable time after the inception of the disease. Moreover, the large uterus nearly fills the pelvic cavity, and affords a fixed point comparatively high up in the abdomen proper for the development of adhesions with other parts.

Morbid Anatomy in the Acute Stage.

The morbid anatomy is well seen when operation is undertaken in the acute stage. The tubes are seen to be greatly congested and œdematous, especially in the ampullary portion, while the fimbriæ are protruding and the ostium is discharging pus. The isthmus may appear to be quite normal or swollen to a less extent. Any adhesions at first are light and easily separated, often being due to flakes of recent lymph and chiefly involving adjacent coils of small intestine and part of the cæcum or pelvic colon. The abdominal ostium frequently opens into a small abscess cavity walled in by the adherent coils and situated at first just in front of and above the sacro-iliac joint. Later, when suppuration has extended, it tends to pass forward along the brim of the pelvis towards the uterine cornu and is shut in from above by the omentum, or the pus may even come into relation with the abdominal wall, and I have seen eruption of the abscess through the parietal peritoneum into the layer of fat beneath the rectus.

The Course of Puerperal Salpingitis.

It is noteworthy that the pouch of Douglas early becomes obliterated in nearly every case by a light adhesion of its anterior and posterior walls, extending to the depths of the fossa, and effectually preventing the formation of a deep abscess. This is a point of considerable importance both as regards the physical signs and the technique of the operation, for it is in sharp contra-distinction to the state of affairs which exists in ordinary non-puerperal salpingitis, where inflammatory collections appear at the lowest part of the pouch. In puerperal salpingo-peritonitis invasion of the pouch of Douglas is secondary to the extension of pus from the primary focus at the ostium of the tube as it burrows from above downwards along the postero-lateral wall of the pelvis. It is only at the delayed operations that the fossa is found to contain an abscess, and then not in its depth, but spreading from the infected ovary. Similarly the utero-vesical pouch may be effaced in whole or part by adhesion of the bladder to the anterior uterine wall.

A secondary condition sometimes found in cases operated on at a later date is a cellulitis of the upper part of the broad ligament which has spread forward from the meso-salpinx to involve the tissue beneath the round ligament. Under these circumstances the upper part of the broad ligament becomes an indurated dome-shaped mass limited behind by the tube, and in front by the round ligament, presenting an upper triangular surface having its apex at the uterine cornu. Later, the infection affects the cellular tissue in front of the round ligament, which then takes up a position riding over the convex surface of the cellulitis. It is common also for the inflammatory process to extend over the pelvic brim into the iliac fossa, and also along the infundibulo-pelvic ligament as in ordinary parametritis. A mild degree of œdema is common in the meso-salpinx in the earliest cases, but it may be the forerunner of an extending cellulitis, as I have stated. When suppuration occurs here it tends to point just external to the uterine cornu in the angle between the round ligament and the tube. It is this which sometimes accounts for the firm adhesion of the uterine cornu to the omentum or abdominal wall, and furnishing an important physical sign in the shape of a localised point of exquisite tenderness just external to the lateral edge of the uterus.

Suppuration of the ovary can arise in three ways. Firstly, it may be a late result of acute purulent salpingitis after adhesion with it has occurred, as is commonly seen in the gonococcal cases; secondly, it may be an exacerbation of an old condition of salpingo-oöphoritis; and thirdly, from the wall of the gut by direct extension. This is the only explanation I can give of a case I recently operated upon. The tubes in this patient were perfectly normal, lying just above the pelvic brim, but the left ovary, which was not the subject of old inflammation or adhesions, was fixed by its convex border to the pelvic colon, which at this point was indurated and œdematous. On separating the two a small collection of about half a drachm of pus was liberated. Evidence of the gut as a direct channel of infection is also supplied by another case of suppurative salpingo-peritonitis where *Bacillus coli* was grown only from the peritoneal abscess and not from the tube or uterus, which yielded streptococcus and gonococcus respectively. The spread of pus infection to the normal ovaries is a serious matter, as, short of removing the organ, it is difficult to eradicate when once established. Moreover, in these cases ovarian infection is the starting point of a descending suppuration. The first mass that can be felt by vaginal or rectal examination is the infected ovary surrounded by adherent coils or omentum. From this initial peri-ovarian abscess pus spreads downwards to form a collection in the pararectal fossa. Later the ovary can be felt as an enlarged mass, a fact due to its containing an intra-ovarian abscess.

The subsequent morbid anatomical changes can be studied during the delayed operations. Then it is seen that the chief change has been the formation of dense adhesions involving all the pelvic organs, together with the omentum and intestine. Especially are the tubes and ovaries firmly bound down to the large uterus and pelvic brim. Suppuration tracks in all directions, causing large peritoneal abscesses, and the ovary may be converted into a large pus sac. General suppurative peritonitis appears to be rare as the result of purulent salpingitis, though we know that it is not uncommon in trauma of the uterus in labour or abortion, and it is sometimes seen in septicæmia.

The bacteriological examinations of my cases have been too few to justify any conclusion, but four cases have all grown streptococci, with gonococci once, and *Bacillus coli* also.

Cause of the Disease.

We know that the disease is due either to extension of organisms along the tube from the infected uterus or to an exacerbation of previous salpingo-oöphoritis, which must of necessity have been only slight in degree or unilateral. That the former does frequently occur is certain, and can be easily understood; but I believe that the disease is sometimes caused by organisms that have lain dormant for a long time in otherwise perfectly normal tubes, and the following case proves this.

Some two years ago a patient, at the commencement of labour, underwent a deliberate Cæsarean hysterectomy by Mr. C. W. G. Bryan at St. Mary's Hospital. The tubes were divided and ligatured in the ordinary way at the uterine cornua. The convalescence was normal and undisturbed till the end of a week, when she developed signs of acute lower abdomen illness. We reopened the abdomen together, and found both tubes in a state of acute purulent salpingitis, leaking pus into the usual peritoneal abscess cavities situated around the abdominal ostia. The tubes showed absolutely no trace of old adhesions, and the fimbriæ were separate and protruding around the ostium as a result of œdema. Moreover, Mr. Bryan assured me that there was at the first operation no sign of old salpingo-oöphoritis.

This case proves conclusively that the disease can arise entirely independently of post-partum uterine infection, for here there was no uterus at all, and also that potentially dangerous microbes can lie quiescent in an apparently normal tube. Incidentally I might add that I believe the tube can exercise an inhibitory effect on microbes within its lumen at ordinary times, for I have succeeded, for instance, in growing streptococci from the peritoneal abscess cavity around the tube and from the uterus, but have failed to cultivate a microbe from the pus within the tube in the same patient. But during the puerperium this defensive mechanism—if there be any, in fact—appears to deteriorate and allow an outburst of organic growth previously held in check.

Symptoms and Signs.

There is little noteworthy about the symptoms, for they are those commonly complained of in an acute lower abdominal peritonitis. A few points, however, may be emphasised. As in acute appendicitis, pain precedes everything and is rapidly followed by a slow rise of temperature to reach 102° or 103° F. on the third or fourth day, with a pulse following suit. Vomiting is not a feature in the early cases. An interesting and indicative symptom occasionally is retention of urine or painful micturition, and is specially seen in cases where a cellulitis has developed secondarily to the salpingitis involving the upper part of the broad ligament and extending forward beneath the round ligament to the neighbourhood of the bladder. If the patient is not operated upon there is a persistent fever, with chronic pain and wasting; she slowly goes down hill, develops cardiac weakness, and is bedridden.

The physical signs require more detailed description.

In the early stages the abdomen is not truly rigid and there is nothing but tenderness fairly accurately localised to a point about 2 inches below and external to the umbilicus—i.e., over the posterior part of the lateral brim of the pelvis. The fundus uteri can be felt rising about 2 inches above the symphysis. It may or may not be tender at first, but later becomes so, especially if adhesions become attached to the cornua or if a secondary cellulitis develops. After a week or more it is not unusual to find a mass in the hypogastrium to one side of the fundus uteri. Excepting cellulitis, which is felt immediately above Poupart's ligament, such a tumour is nearly always due to adherent omentum and coils of distended gut. Later as suppuration spreads there is true rigidity and tenderness of the whole hypogastrium, with extension upwards over the ovarian veins, if thrombosis of these vessels has taken place.

Per vaginam the signs are difficult to appreciate, for the primary changes are not in the pelvis, and the gentlest manipulation causes pain. The uterus can be felt enlarged, with limited mobility soon developing, and later complete fixity. In the first few days it is symmetrically disposed in the pelvis, but later it may be displaced laterally by secondary cellulitis, and the displacement is towards the side affected. During the first week there may be little or nothing felt in the lateral fornices, but later an indefinite tender mass can be felt very high up in the postero-lateral region, which is largely made up of the ovary surrounded by adherent coils enclosing pus. The accessible part of Douglas's pouch seldom, if ever, contains anything, though per vaginam the posterior portion of the lower part of the uterine body may give the impression of a tumour, because it tends to bulge backwards immediately above the cervix. By far the best palpation of the pelvis is gained by rectal examination. High up on one or both sides the early composite swelling can be made out fairly early, becoming larger and more distinct as time passes.

A swelling high up in the broad ligament disturbing the position of the uterus is probably a mass of secondary cellulitis.

Treatment.

The treatment of this disease is, perhaps, the most interesting part of its discussion. Whether or not operation should be done is a question less contentious than *when* it should be done. In the great majority of these patients there is no doubt that operation is necessary, for the condition is essentially one of suppurative peritonitis, which, unless relieved, will show no tendency to undergo spontaneous resolution. The condition is totally different, as we have seen, from the ordinary acute gonococcal salpingo-oöphoritis where the whole process is confined within the limits of Douglas's pouch, and where also experience has shown that almost complete resolution is possible in the majority of cases. Moreover, the peccant organism in puerperal salpingitis is frequently a streptococcus, which the peritoneum is far less able to tolerate and suppress than the gonococcus. Further reasons are that the tubes being subinvoluted, soft and distensible, are more liable to develop into pus sacs, while the involution of the uterus is permanently delayed, probably laying the foundation of a chronic hypertrophy. But the time at which operation should be performed is the point which admits of difference of opinion.

My own view is that puerperal salpingo-peritonitis should be operated upon as early as the diagnosis is established, for the following reasons:—

1. If radical treatment is delayed the general condition of the patient rapidly deteriorates. There is loss of flesh and strength, amounting later to emaciation, with the danger of cardiac failure following an operation performed as a last resort.

2. The ovaries, which are at first free from suppuration, are prone to develop small abscesses, and later become disorganised. When once the ovary has become the seat of a pus infection it is extremely difficult to eradicate it without removing the whole organ; and if such an ovary is left in situ it forms a source of chronic pelvic trouble.

3. The adhesions become tougher with delay and more difficult to separate, involving risk to the gut, more extensive raw areas, and more time to complete the operation. Strong adhesions form a serious additional risk to the operation.

4. The tubes become thoroughly disorganised and incapable of repair. The delicate ciliated epithelium is desquamated, granulated tissue takes its place, and the walls become permanently thickened. The tube as a whole becomes densely adherent to the ovary, the uterus, and lateral wall of the pelvis. Removal of such a tube may be an almost impossible task without injury to the gut or even to the ureter, and yet if these appendages are left in situ the patient's convalescence may drag on for months or even a year with a chronic sinus and emaciation.

5. The peritoneal abscesses extend and may reach the abdominal wall, especially over the uterine cornua. In one patient the pus had actually tracked through the peritoneum and had formed an abscess in the paniculus beneath the rectus.

6. Secondary cellulitis of the upper part of the broad ligament may develop if the condition is not relieved by operation. This sometimes goes on to pus formation pointing at the cornual angle. Cellulitis is a serious extra burden for the patient, delaying the convalescence, adding fresh possibilities because of its dangerous lines of extension, tending to produce thrombosis of the ovarian veins, and liable to leave a legacy of chronic pelvic pain.

Almost any one of these reasons is sufficient, but taken together they certainly make a good case for early operation. The disease is quite different from acute gonococcal salpingitis, and the objections to early operations in this condition do not here obtain.

Operation.

The operation itself should be done with great care, and sound judgment is necessary to determine the exact procedure required by each individual case.

After the abdomen is opened and the cut edges of the peritoneum clipped to towels, the upper part of its cavity must be thoroughly packed off by gauze in the usual way. Obstructing adhesions are then separated, and the region of the abdominal ostia of the tubes is sought, as it is here that a peritoneal abscess will most likely be found. Great care should be taken not to disturb the light adhesion which has probably obliterated the pouch of Douglas and possibly also the utero-vesical pouch. The tubes and ovaries are inspected to note particularly whether the affection is entirely recent or whether there is evidence of old inflammatory trouble. In the former case the ostium will still be patent, surrounded by œdematous fimbriæ, and if the tube be gently squeezed pus will exude from its open end.

Now such a tube is a potential pus sac, but at the same time it still possesses a mucous membrane capable of restoration to a functioning condition, provided that operation is undertaken during the first few days; this point can easily be demonstrated microscopically. Therefore to leave the tube alone is to invite chronic inflammatory changes, perhaps a pyosalpinx, with a train of chronic pelvic symptoms; whereas removal of the tube at this stage is too radical a measure for an organ which is capable of complete restoration. The correct surgical treatment, I believe, lies in permanently laying open the tube in order to drain it. Scissors should be entered at the ostium and the ampulla opened up. This procedure is exactly comparable to the laying open of an ill-draining abscess cavity with the object of terminating the suppuration and preventing further damage by the continuance of a subacute inflammation set up by the presence of pus under a certain degree of tension. The ostium, while it remains patent, is incapable of affording free drainage of tubal contents, and soon, as we know, in septic infections the fimbriæ adhere and close the opening. Salpingostomy immediately destroys the tube as an abscess cavity, but does not destroy it in its capacity as a future ovum-bearing channel, provided that it is done at an early stage of the disease. Further, by checking the suppurative and inflammatory processes within the tube not only is a pyosalpinx impossible, but there is no longer a tendency for the formation of chronic interstitial salpingitis with permanent closure of the ostium and complete destruction of the ciliated epithelium.

That an acutely suppurating tube can undergo complete resolution after salpingostomy I have recently had occasion to witness.

A patient at the Willesden Municipal Hospital in whom I carried out this operation on the left side developed pneumonia and died about a month after. At the autopsy I found that this tube had completely resolved. It had shrunk to the normal size and its gutter was lying open, while it had contracted absolutely no adhesions. This was in spite of a small chronic abscess holding about half a drachm of pus between the ovary and lower part of broad ligament.

I was much impressed by this case, as originally the tube was in a condition of acute suppurative salpingitis, from which streptococci were cultivated. If, however, the tubes and ovary show signs of former inflammation and are bound down, giving no promise of ever being able to function again, they should be removed in the ordinary way. Otherwise they are liable to furnish chronic foci of suppuration and the patient's convalescence is immensely prolonged. The delayed operation—i.e., performed after two or three weeks, may be difficult and dangerous on account of the appendages being enveloped in very dense adhesions. There is now little hope of saving the tubes; in fact, it is usually necessary to remove them to ensure a reasonably quick recovery. Mere drainage of the peritoneal abscess cavity is not sufficient. Secondary cellulitis of the upper part of the broad ligament should be incised radially from the cornu between the round ligament and the tube and explored by a sinus forceps. Pus is frequently found, but if not the escape of serum and œdematous fluid materially hastens subsidence. Before closing the abdomen the suppurating areas should be drained.

Conclusions.

The general principles, therefore, in operating on acute puerperal salpingo-peritonitis are to employ conservative measures on structures in an acute condition in order, firstly, to save them, and secondly, to prevent chronic changes developing in them, but to deal radically with acutely inflamed and seriously damaged appendages in spite of dense adhesions which may be present. In this way much can be done to conserve function, to prevent chronic disease, and to provide for a reasonably quick recovery to normal health.

A FURTHER SERIES OF FORTY CASES OF BONE-GRAFTED MANDIBLES.

BY GILBERT CHUBB, D.Sc., M.B. LOND., F.R.C.S. ENG.,

SURGEON TO THE THROAT HOSPITAL, GOLDEN-SQUARE; AND PLASTIC SURGEON TO THE QUEEN'S HOSPITAL FOR FACIAL INJURIES, SIDCUP.[1]

SINCE the publication of my earlier paper[2] I have bone-grafted 40 additional patients, bringing the total series up to 100. In the first 60 cases, a complete analysis of which I have already given, bony union was obtained in 93 per cent. In the 40 subsequent cases bony union has been so far obtained in 24, 4 are definite failures, and the remainder, nearly all quite recent cases, appear to be consolidating satisfactorily.

The operative technique has remained unchanged; the graft in every case has been taken from the crest of the ilium, fitted and securely wired into accurate end-to-end apposition with the jaw fragments by means of the "templates" described in my earlier paper. In practically every case the whole depth of the jaw has been utilised in the formation of the facet for apposition with the graft. In the case of the posterior fragment this facet has frequently measured from 1 inch to 1½ inches in vertical extent. (Fig. 1.) The graft has been fashioned of a like depth. The result is a solid reconstruction of the mandible devoid of all trace of spring, and with an "alveolar border" continuous with that of the jaw fragments. This upper or alveolar border of the graft is at first formed by the open cancellous tissue of the iliac crest. Successive observations with X rays, however, show that with exposure to the stresses incidental to the use of the jaw, this upper border becomes rounded off with a layer of compact bone.[3] Clinically it has been observed that the upper border of the graft becomes capable of bearing the direct pressure of a denture within a few months of the operation. In three cases it was possible to verify this condition of the graft, in two cases during life and in one after death.

As foreshadowed in my earlier paper, the practice has been adopted as a routine of opening the splints and allowing free use of the mandible at the second or third week after operation. In nearly all the cases the loss of bone extended beyond the standing teeth, so that this practice resulted in exposing the grafted mandible to considerable strain. The results have confirmed my earlier impression that this exposure hastened consolidation of the union. Radiograms show distinct evidence of union in the form of delicate striæ across the line of junction at the third or fourth week. By the third or fourth month radiograms, as a rule, show no trace of the line of union. This rapidity of union is entirely independent of the size of the graft. Cases 68, 71, 72, and 79 (Fig. 2) were all cases in which the loss of bone extended from the canine region well into the ascending ramus, and all showed clinical union with no trace of spring by the fourth week after operation. Three of these cases had had a bone graft which had failed to unite prior to coming under my care.

In my earlier cases I frequently split the graft, using only half its thickness, the deeper aspect of the graft consisting of open cancellous tissue, and only one layer of compact bone being present. The more complete exposure of the jaw fragments in later cases has enabled me to accommodate the entire thickness of the graft, but that the earlier practice in no way interferes either with the survival of the graft or with its rapid union with the jaw fragments is shown by the fact that Case 68 quoted above is one of the few instances in which this practice has been followed among the more recent cases. Opportunities occurred for examination of the nature of the union obtained in three cases respectively 6, 15, and 18 months after the bone-grafting

[1] A résumé of a paper read to the Surgical Section of the Royal Society of Medicine, February, 1921, when cases, radiograms, and microscopical sections were shown.

[2] THE LANCET, 1920, ii., 9.

[3] A similar architectural adaptation of stress has been described for the tibial graft in Albee's operation for Pott's disease.

operation.[4] The specimen at 15 months was obtained owing to the necessity for resecting the posterior union in order to open the mouth, the posterior fragment being so fixed by fibrous tissue as to resist less drastic treatment. The case at 18 months was a post-mortem specimen. Sections from both cases were ground on the finger. When sufficiently thin for mounting they could not be bent at the zone of union. They were

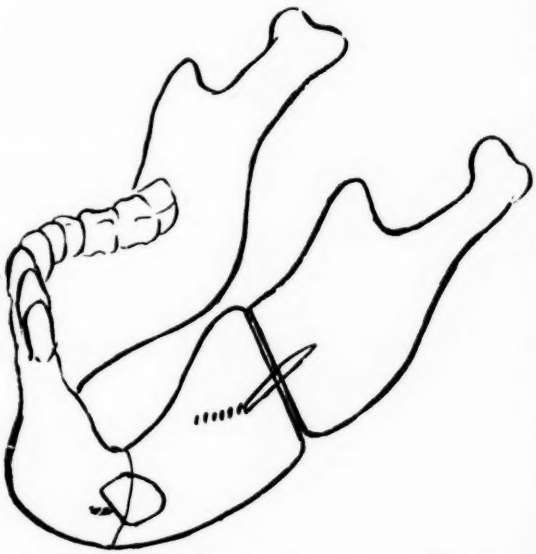

FIG. 1.—Diagram taken from an X ray five weeks after operation. Four months later all trace of the line of union had disappeared.

stained with mallory, which has an especial affinity for fibrous tissue. The periosteal tissue on the surface of the sections is deeply stained, while the zone of union in each case remains unstained. (Fig. 3.) When viewed under the higher power of the microscope this region is seen to consist of dense bone, the lamellæ and lacunæ of which are distinctly visible. (Fig. 3A.)

FIG. 3 (Case 40).—Ground section of bone across union of graft and posterior jaw fragment 18 months after the bone-grafting operation. The deeply-stained periosteal tissue is sharply contrasted with the absence of fibrous tissue in the zone of union. (The demarcated area A appears enlarged below.)

I did not commence bone-grafting for the repair of the fractured mandible until the end of 1918. To this circumstance is, perhaps, due the very large proportion of the cases—well over 80 per cent.—in which the loss of bone extended beyond the standing teeth, or even involved the ascending ramus. To the same cause is due the considerable number of cases in which one, or even two, bone-grafts had been inserted and had failed to unite prior to the patient coming under my care. In only one of these cases have I failed to obtain bony union. In this case there had been two previous bone-grafts; the loss extended from the canine region almost to the condyle, and the graft I inserted was

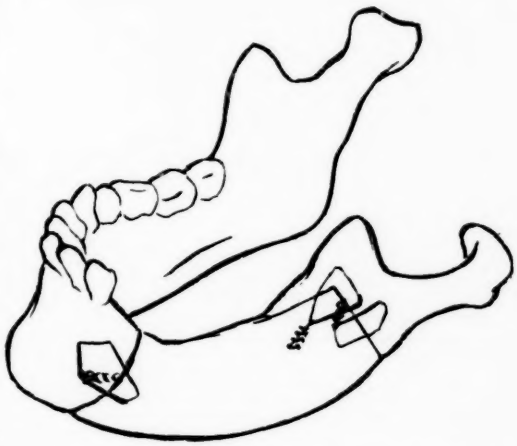

FIG. 2.—Diagrammatic representation of mandible of a Chinaman, who proved a very unruly patient. He removed his stitches with a razor a few days after operation, and soon afterwards removed his splints; nevertheless his graft was quite firm after the fourth week. He has since returned to China. This was one of the cases referred to in which a previous bone-graft had failed.

fully 4 inches long. Infection followed the operation and the graft was subsequently removed.

Nothing has contributed more to the great progress reconstructional oral surgery has made during the last few years than the intimate coöperation which has been established between the operating and the dental surgeon. All the cases have been operated upon at the Queen's Hospital for Facial Injuries, Sidcup. Through-

FIG. 3A.—The demarcated area in Fig. 3, shown at a higher magnification; the lamellæ and lacunæ of the dense bone are clearly seen.

out the work I have had the advantage of the expert advice and encouragement of Sir Frank Colyer, the consulting dental surgeon to the hospital. For the great majority of the cases the dental and prosthetic treatment has been carried out by Mr. B. Mendleson, to whose active and whole-hearted coöperation I stand much indebted. The sections showing the nature of the union obtained have been very kindly made for me by Mr. James T. Carter.

[4] The section at six months was from a decalcified specimen, and was described in my previous paper.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

TWO CASES OF GANGRENE OF THE LUNG

COMPLICATING INFLUENZAL PNEUMONIA.

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AND
F. B. SMITH, B.CH. CANTAB.

THE account by Dr. Cronin Lowe in THE LANCET of Jan. 15th of three cases of severe colitis found post mortem after influenza recalled the following two cases of gangrene of the lung seen by us during the same influenza epidemic. In view of the similarity of one form of this disease to a true septicæmia such a complication might be expected to result from an embolus. At the time—i.e., June, 1918–March, 1919—no instance of pulmonary embolus recorded by others came to our notice, and during the two years subsequently a search through a considerable portion of the literature has failed to show any reference to the condition. The reason for recording the cases is not that we think them very unusual, but in order to ensure that the picture of the disease may be made as complete as possible. One case was diagnosed before death; both were fatal.

CASE 1.—Lieutenant ——, aged 23. Admitted Oct. 21st, 1918, from transport ship after reporting sick six days previously. Irritable dry cough. Temp. 101·4° F. Headache, sore throat; copious, blood-stained purulent sputum for last 24 hours. Poor air entry over whole of chest, with small localised area of broncho-pneumonia in the left lower lobe. 23rd: Pyrexia subsided by lysis; P. 60, R. 20, chest remarkably clear of signs; patient merely exhausted. 27th: Allowed to sit up in easy chair. 29th: While sitting up in chair at 6 P.M. sudden acute attack of pain in the left lumbar region. The patient likened this pain to lumbago; its sharp stabbing onset was very noticeable. No physical signs obtained. Chest still clear. 30th: T. 100, P. 90, R. 26. Examination of chest, abdomen, and urine negative. No cough; patient could lie only on the right side; abdominal muscles quite rigid. 31st: Hæmoptysis of about 20 oz. of dark blood, with striking relief of pain in the side; diagnosis of pulmonary embolus made. Nov. 2nd: Sputum copious, muddy, limpid, no mucus, very offensive; small effusion of fluid left base; sputum showed no pus cells, appeared to be a pure culture of a diplo-streptococcus. 8th: Left chest explored, fluid withdrawn having the same characteristics as the sputum.

Operation.—This lasted half an hour under chloroform and ether. A portion of the seventh rib was excised; incision opened directly into a large gangrenous cavity in the deep substance of the lower lobe of the lung, apparently well shut off from the upper pleural cavity. T. subnormal, P. 100, R. 28. Wide drainage. 12th: Gaseous cellulitis of chest and loin; extensive incisions. Carrel-Dakin's tubes. Impossible to apply local antiseptics to the chest cavity on account of threatened asphyxiation of the patient by any fluid introduced. 18th: Extension of the cellulitis to the buttocks; lobar pneumonia right lower lobe with clear pleural effusion. 21st: Death.

Post-mortem findings.—Heart: Excessive clear fluid in the pericardium. Right ventricle completely filled by organised ante-mortem clot extending continuously through the pulmonary valve along the artery beyond its first bifurcation. Right lung: 10 oz. turbid pleural effusion. Dense fibrinous pleural membrane. Lower lobe shows massive consolidation commencing to resolve. Left lung: Upper half of the upper lobe normal. The rest of the lung wholly destroyed by a stinking, gangrenous cavity with bronchioles, arteries, and connective tissue strands necrosed, and bridging the cavity, which is firmly shut off by adherent pleura from the upper half of the pleural sac. The upper division of the artery to the upper lobe is patent, lower division completely occluded by an extension of the organised clot from the heart, a quarter of an inch in diameter. Artery to the lower lobe completely occluded by an extension of the organised clot from the heart, its termination visible in the wall of the cavity, and half an inch in diameter.

CASE 2.—A sergeant, aged 23. Admitted on Oct. 3rd, 1918, off transport ship third day after reporting sick. Well-marked broncho-pneumonia left lower lobe. 8th: Pyrexia gone by lysis. 14th: Pleural effusion left side. 15th: Thin pus withdrawn; excision of part of seventh rib; wide tube drainage. 18th: Discharge ceased; later in the day a sudden attack of pain in the left side, with discharge of serous limpid fluid through the drainage-tube. 19th: Fluid draining from the chest in a surprisingly large amount; pyrexia high; general condition worse. 25th: Heart failing; high "septic" fever; profuse sweating for last six days; loud amphoric respiratory murmur over whole of left chest. 27th: Death.

Post-mortem findings.—Right lung normal. Left lung upper lobe collapsed. Pleural membrane thick and fibrinous, with some localised pockets of pus adjacent to the pericardium and on the left surface of anterior mediastinum. Lower lobe, gangrenous stinking cavity 3 by 2 inches in dimensions, bounded below by the diaphragm and involving one-third of the mass of the lobe. The rest of the lobe shows resolving massive consolidation. Embolus or thrombus to account for the gangrene could not be found. Heart: Apparently normal; no ante-mortem clot.

Remarks.

It may be that Case 2 was an abscess of the lung of other primary origin than an embolus, but the type of lesion post mortem certainly suggested embolic origin in spite of the fact that an occluded artery could not be demonstrated. These two cases occurred amongst a series of 49 other post-mortem examinations made during the course of the epidemic. In two other of these cases there were present small multiple abscesses, not gangrenous in type. In the comprehensive account of the disease and its pathology given by Drs. A. Abrahams, N. Hallows, and H. French in THE LANCET of Jan. 4th, 1919, no mention is made of pulmonary embolism.

A NOTE ON

SPLENECTOMY FOR TORSION OF THE SPLEEN IN A CHILD.

BY A. H. SOUTHAM, M.A., M.CH.OXON., F.R.C.S.ENG.,
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TORSION of a wandering spleen in a child, followed by the operation of splenectomy, is a condition not often met with. The successful result makes the following notes worthy of publication.

J. H., a boy, aged 6 years, was brought to the Manchester Royal Infirmary on Dec. 31st, 1920, with a diagnosis of acute appendicitis. His mother stated that he had been seized with sudden abdominal pain the previous evening at 10.30 P.M. whilst he was in bed, and had been vomiting continuously ever since. He had never complained of abdominal pain previously. On examination he was found to have a temperature of 100° F., and a pulse of 120. The whole abdomen was held very rigid, with tenderness and rigidity most marked over McBurney's point. I decided to perform laparotomy immediately. When under the anæsthetic, a large and freely movable tumour was palpable in the right iliac fossa. The abdomen was opened through the right rectus muscle and the tumour was found to be an enlarged and congested spleen. The organ was without difficulty delivered through the incision, and the pedicle was then seen to be twisted on itself two and a half times. The pedicle was transfixed and ligatured in two halves, a second ligature encircling the whole pedicle. The pedicle was then divided, distal to the ligatures, and the spleen removed. The abdominal incision was sutured in layers. Convalescence was uneventful, and the child was discharged from hospital on Jan. 19th, 1921. The spleen was found to weigh 14 oz.—three to four times the usual weight of the organ at this age.

A blood film, taken immediately after the operation was completed, showed a slight polymorphonuclear leucocytosis, but otherwise no change from the normal. A second film, taken the day before his discharge from hospital, showed a leucocytosis with some diminution of the colour index. Microscopical examination of a section of the spleen showed extreme congestion of the organ; no other pathological changes were to be found.

The cause of the enlargement of the spleen is difficult to determine. The child showed no evidence of rickets or congenital syphilis, and the other abdominal organs appeared at the operation to be normal in size and position. The condition may have been congenital in origin or it may have arisen as a gradual process, slight torsion of the pedicle causing congestion of the organ and a slow increase in size, a sudden extra twist giving rise to the acute symptoms. There was, however, a complete absence of history of previous attacks of abdominal pain. It is interesting to note that the number of twists of the pedicle was the same as the average number of twists found in cases of torsion of an ovarian cyst or of the testis. The ectopic spleen is said to be usually found on the left side of the abdominal cavity; in this case it was well to the right of the median line. This position, the acuteness of the onset, and the marked tenderness and rigidity in the right iliac fossa made the condition closely simulate an attack of acute appendicitis. It would appear that the spleen can be removed in a child without any immediate ill-effects.

I am indebted to Mr. Charles Roberts, under whose care the patient was admitted, for permission to publish these notes.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

GENERAL MEETING.

ERADICATION OF TUBERCULOSIS IN MAN AND ANIMALS.

A GENERAL meeting of the Fellows of this society was held on March 14th, Sir JOHN BLAND-SUTTON, the President of the society, being in the chair, when a discussion of the eradication of tuberculosis in man and animals was opened by Sir JOHN MCFADYEAN, Principal of the Royal Veterinary College.

Prevalence of Bovine Tuberculosis.

He pointed out that, though there was a considerable number of diseases which were recognised as common to man and animals, yet in most of them cases of actual transmission from animals to man in this country were extremely rare, and transmission in the opposite direction was still rarer. Tuberculosis was the great exception to the rule among diseases of animals communicable to man. What was termed tuberculosis was met with in all the domesticated animals, but avian tuberculosis was now regarded as a disease distinct from that which prevailed in man and other mammals, and cases of its transmission to other farm animals or to human beings were unimportant on account of their rarity. For the veterinary profession the chief form of tuberculosis was that which affected the bovine species, and as regards economic importance it alone was important. It was essentially a disease of cattle in the sense that the type of bacillus which caused it would cease to exist if the bovine species became extinct. It was an independent disease of cattle in the sense that the eradication of human tuberculosis would leave its incidence among cattle unaffected. On the other hand, the eradication of bovine tuberculosis would reduce to nearly vanishing point the loss which tuberculosis at present caused in pigs and other farm mammals, and it would sensibly diminish the cases of human tuberculosis, especially those which had their starting-point in connexion with the alimentary tract.

Incentives to Eradication.

There were two incentives to an effort to eradicate tuberculosis from the bovine species; the one might be termed economic and the other humanitarian. In order to estimate the force of the *economic incentive* one must be informed regarding the loss at present inflicted by the disease on agriculturists and others who breed and keep cattle. Cattle of all ages were subject to infection with tuberculosis, and the incidence rose with the age and reached its maximum among old cows. It was scarcely possible to say what proportion of the entire cattle population was affected, because we had neither slaughter-house statistics nor the record of tuberculin-testing of young cattle on a sufficient scale to warrant precise conclusions. It was quite certain, however, that the proportion affected under 2 years old throughout the country was generally low. In breeding animals from 3 years upwards it could not be estimated at less than 30 per cent., and in the principal milking breeds it was probably at the present moment nearer 40 per cent. Much higher percentages were not at all rare in particular herds. In spite of this the mortality was low, and in well-managed herds it was often under 1 per cent. per annum over a period of years. Unlike some other contagious diseases of cattle, tuberculosis was thus not generally so serious from the farmer's point of view that he felt compelled to take measures to eradicate it from his herd if these measures involved either great trouble or great expense. There were exceptions to the rule that the existence of tuberculosis in a herd did not cause great loss, but in such exceptional cases one usually found that the owner had taken no precautions whatever, and that he had been in the habit of keeping tuberculous animals in the herd long after they had become visibly affected. In such circumstances not only was the proportion of animals affected increased, but the proportion of cases which assumed the clinical form and developed udder lesions was also increased. In cattle, as in man, in the great majority of cases actual infection did not become manifested by obvious deterioration of health.

With regard to the *humanitarian motive*, at the present time instructed medical opinion throughout the world appeared to be solidly in favour of the view that the frequency with which tuberculosis was transmitted from cattle to man provided a strong incentive to complete eradication of the bovine disease. He would be interested to hear what those present thought of the new view that the passage of tubercle bacilli from cows' udders to the stomach of children might actually be beneficial to the human species by producing an immunising effect and thereby diminishing the result of subsequent infection with the more virulent human type of the bacillus.

There was not the least doubt that the disease could be eradicated within a few years if that were considered necessary regardless of cost. This could be effected by enforcing the general testing of all cattle in the country, followed by compulsory slaughter of all reacting animals. Having regard to the facts already mentioned concerning the present incidence of the disease such a scheme was unthinkable. It would involve the slaughter of one-third to one-half of all the milking cattle in this country, and also a considerable proportion of the younger stock. Putting aside the fact that it would involve the payment of a huge sum of money to compensate for the slaughter of apparently healthy cattle it would greatly reduce the supply of milk immediately and for a good many years to come, and add in a proportional degree to its already high price. Concerning the question whether the ultimate complete extinction of the disease might not be achieved by some slower and less expensive method, he thought that, having regard only to the present stage of knowledge, the answer must be that unless a great discovery was made with regard to vaccination against the disease one could not hope for anything beyond a very slow reduction in its present prevalence. In such circumstances one might consider whether it would be useful to encourage in some way the voluntary efforts of owners to get rid of the disease. The eradication of tuberculosis from a herd, however, in this country was not practicable for more than an insignificant minority of farmers and others who kept milking herds. Those who owned valuable pedigree herds might succeed in freeing their herds from tuberculosis, as might also those who could find accommodation for reacting animals on a separate farm or in entirely separate buildings, and the Institute of Animal Pathology at the Royal Veterinary College had recently made an offer to lend its assistance to the owner of any pedigree herd who was prepared to carry out the measures actually necessary to that end.

Because it was not possible to put in force the drastic measures which would be necessary to eradicate tuberculosis within a prescribed period, it was necessary to enforce such measures as appeared to be practicable and necessary to prevent or diminish the cases of human infection from cattle. In the past very exaggerated views had been held regarding the danger of infection through meat, but at the present time there was general agreement that milk was the great vehicle of human infection, and that cases of transmission of bovine tubercle to man would be greatly diminished if one could cut off from human consumption the milk which came from cows which were actually infected with the disease. This was the object aimed at by the Tuberculosis Order which came into force in 1913 and the slightly modified Order which replaced that in July, 1914. The suspension of the latter Order on the outbreak of war was a misfortune, and if the subsequent discussion indicated that those present were in sympathy with the proposal he would be prepared to move a resolution to the effect that the reintroduction of the Order was urgently necessary in the interests of public health.

Bovine Disease as a Vaccine.

Professor S. LYLE CUMMINS said, with reference to Sir John McFadyean's question about the importance of bovine tuberculosis as a disease affecting man, that it raised several acutely controversial points. In Professor Cummins's opinion, when questions proved to be acutely controversial it was generally found that no very certain knowledge existed on either side. In a sense this was true as to the importance of bovine tuberculosis in this country. On one side much knowledge was being gained at the present time through researches of Dr. Stanley Griffiths at Cambridge and of others, some actually present at this meeting. It could be stated without any hesitation that bovine bacilli did cause fatal disease in human beings. It was known that they caused much of the abdominal tuberculosis of children, and it was also true that they take their share in producing tuberculous meningitis. As to the possibility of milk charged with bovine bacilli having a beneficial action as a vaccine, we were on much more uncertain ground.

There was, he went on to suggest, a great deal of evidence to show that the human race, in England at

least, did owe a considerable amount of immunity to the ingestion of bovine bacilli in milk. Some support for this theory was to be found, he thought, in recent statistical records published by Dr. J. Brownlee, in which it had been shown that there were two important types of mortality from pulmonary tuberculosis in this country—the one affecting young adults and being especially prevalent in the Shetlands, in Wales, and in Ireland, the other leading to a mortality in middle-age, and being commoner in our large towns. It had been shown that there was a definite co-relation between the middle-aged type of mortality and milk-supplies contaminated with tubercle bacilli, but no such co-relation could be traced as between contaminated milk and mortality of the young adult type. As the middle-age mortality represented, presumably, a type of the disease on the whole more benign than that associated with earlier deaths, it was probable that some factor of resistance was operative in the one and absent in the other. Such a factor might perhaps depend on immunisation following small bovine infections in early life. But while thinking that such a theory was not merely tenable, but probable, Professor Cummins was far from advocating the deliberate use of contaminated milk for the purpose of obtaining immunity. Even assuming that such milk did actually act as a vaccine, it must be regarded as a very dangerous one, because the doses could not be controlled, and a massive dose would certainly lead to serious illness and perhaps death.

Under these circumstances Professor Cummins was prepared to support strongly the views expressed by Sir John McFadyean that every possible effort should be made to provide milk as free as possible from tubercle bacilli. He quite agreed with Sir John McFadyean that the complete elimination of bovine tuberculosis was out of the question as a practical measure, but he thought that if our efforts for a pure milk met with success we might reasonably hope so to diminish the number of tubercle bacilli in milk-supplies that there would be no danger of clinical disease and every prospect of the acquisition of relative immunity. When all was said and done, far the most important type of tuberculosis in this country was pulmonary tuberculosis, a disease caused by the human bacillus. Apart from the question of infection by bovine tubercle bacilli, there were other very strong reasons for wishing for a purer milk-supply. Many other diseases besides tuberculosis could be caused by contaminated milk. There was no doubt that the nutritive substances in milk were in very great dilution, and that the transport of milk involved the conveyance of very large volumes of fluid in proportion to the amount of nourishment contained therein. It was to be hoped that the physiologists might ultimately be able to say for certain whether the properties lost in the preparation of dried milk powder could be substituted efficiently by the addition of other articles to the diet of children.

The Rousing of the Public.

Sir CLIFFORD ALLBUTT said that he did not intend to detain them by a survey of the well-worked field of tuberculosis, of which many of his hearers indeed knew more than he did; yet he would try to say something new on the subject, even if it were paradoxical; as, indeed, it must be. Of the devastation caused by this virulent pest he need not speak, but as Robert Burns thought that there might be something to be said even for "Old Nickie-ben," so perchance to the evil spirit of tubercle some beneficent by-product might be credited. He remembered in the early days of his practice in the north how in the valleys of the Dales enteric fever was rampant and endemic; the farmsteads were foul with stenches, vermin, and disease, but the farmers said that a good manure heap did no one any harm. However, the discovery of the exact causes of typhoidal affections led to a conversion of people who before had turned a deaf ear to all arguments. So it was with tubercle; you might as well have argued with one of his bullocks as with the farmer on the intimate causes of this disease also, until the discovery of the tubercle bacillus aroused the public to a sense of the intimate and subtle virulence of germs of disease which could be neither seen nor handled. Tuberculosis, then, was our schoolmaster to drive into us these truths; a schoolmaster which chastised us with scorpions indeed, but began its serious lessons with those innocents the butcher and the milkman. No less had been the revelations on glanders and the marvellous results in the war of mallein vaccines—results which are almost incredible when compared with the ravages of the disease in former campaigns. Here the education began with the stableboys. Thus the lessons of many such diseases had at last persuaded the man in the street to listen to the truths and prophecies of science.

The Rôle of Comparative Pathology.

Sir Clifford Allbutt continued:—

Let me now bring before you lesson the second, which is to avoid a rush to the other extreme—namely, an unreasoning cry for "results." Our campaign against tuberculosis is proving to the layman that, as in the field so in the laboratory, times and seasons are not to be controlled nor reckoned upon. A long cleaning of the land comes first, then after the fallow we have to plough and harrow to make a fine tilth, then to await due weather to sow the seed, then to keep patience during the long dormancy of seed apparently dead in the soil; and then again many a contingency before harvest is secured. If we are to solve these problems we need capital, time, and patience on the part of those awaiting our results. They cannot be hurried. In the schools maxims can be instilled in some order and with expedition, but discovery, the work of the universities, cannot be hurried nor produced to time. The third lesson of our schoolmaster is that if we are to understand the laws of disease in any one field we must coördinate it with work in other and allied fields of pathology. Every study but medicine has recognised and pursued the comparative method—anatomy, history, religion, law, philology, and so on. Medicine alone fails utterly to see the great work before it in this enlarged realm of research. We shall never understand the diseases of man until we study also side by side with them the diseases of plants and animals. For this reason I welcome to-night most cordially our veterinary visitors and the presidency of Sir John Bland-Sutton, one of the rare links of comparative pathology. Let us learn that the pathological relations of the humblest animal or plant may serve to throw into light fertile general laws and principles. Every moment of our lives we are dependent upon unicellular plants for good and evil. Who would have supposed that the harvest of herrings would appear to depend upon the changes in the sunspots! Now principles cannot be parcelled out between the several aspects and departments of medicine. Some beginning with comparative pathology we are making by coöperating with our veterinary brethren on this occasion, but it is a small beginning; we need far more than this. Fusion between two fields of medicine so different as theirs and ours is impossible, but coöperation and constant mutual enlightenment on systematic lines is essential if we are to comprehend their work, and they in like manner ours; for evolution is one of the keys to pathology as to biology. It is with the greatest anticipation of such a renewal of medicine that I have heard, on some such lines as these, of the election of a committee of which Sir David Prain is the chairman. This is one of the ameliorations we owe to our harsh and cruel schoolmaster tuberculosis. Specialise we must, especially in practice; but it is the place and function of the universities to counteract this narrowness by a wider outlook and by a clear-eyed faith in the results—some ready, some deferred—which we shall gather in if we work together in an endeavour each from our own side to throw crosslights upon the researches of workers in other departments of medicine. Until we establish institutes of comparative pathology our science and art will tarry on the way.

Age Distribution of Human and Bovine Infections.

Dr. A. C. INMAN said that the scientific study of tuberculosis became possible when in 1882 Koch discovered the causative agent of the disease. The distinction between the human, bovine, and avian types was another advance and had allowed us to obtain some valuable knowledge as to the sources of infection and as to the relative importance of infection from man to man and from the consumption of foodstuffs contaminated with the bacilli of bovine origin. For this country the study of the types of bacilli infecting man

TABLE I.

Age-period.	No. of cases.	Human.	Bovine.	Human and bovine.	Atyp.	% bovine.
0 to 5 years. ...	196	127	65	2	2	34·2
5 to 10 years....	265	189	70	1	5	26·8
10 to 16 years....	127	105	16	—	6	12·6
16 and upwards.	341	313	18	2	8	5·9
Total	929	734	169	5	21	18·70

had been very carefully undertaken, and we owed to the Royal Commission on Tuberculosis, and more especially to the extended work of Dr. Stanley Griffith and Dr. A. Eastwood, an accurate knowledge of the relative frequency of infections by the human and bovine types in the various types and forms of tuberculosis, as was shown by Table I. It would be seen that consumption was nearly always due to infection by bacilli of the human type.

Table II. showed the results of sputum cultures :—

TABLE II.

—	No. of cases.	Human.	Bovine.	Atypical.	% bovine.
All ages	212	205	3	4	1·41

Whilst the bacilli recovered from the glands in the neck occurring in children during the first decade of life were, in the majority of cases, of the bovine type, these studies had shown us the importance not only of taking steps to prevent infection from man to man, but also to prevent the consumption of foodstuffs contaminated with bacilli of the bovine type. Evidence obtained from the post-mortem examinations had shown us that under the age of 18 years tuberculosis was relatively uncommon but very fatal, whilst in adults it was common but largely latent and non-fatal. (Table III.)

TABLE III.

Subjects under—	No. of post mortems.	Free from tuber-culosis.	Tuber-culous.	Fatal tuber-culosis.	Non-fatal tuber-culosis.
18 years of age ...	88	73	15 (17 %)	11 (73·3 %)	4 (26·7 %)
Adults	420	29	391 (93 %)	110 (28 %)	281 (72 %)

Another important fact learnt from post-mortem examination was that the healing of a tuberculous lesion consisted in the throwing up of a defensive barrier and the shutting off, rather than the extermination of, the bacilli. Fully virulent living bacilli might be recovered from old "healed" tuberculous lesions even if these had undergone calcification. (Rabinovitch, Burnet.) V. Pirquet's testing of 693 clinically non-tuberculous children with the cutaneous tuberculin test confirmed the findings of the post-mortem room. By the age of 10 years 35 per cent. reacted positively, and by the fourteenth year the percentage had risen to over half (55 per cent.). The observations of Franz on apparently healthy soldiers of (1) a Bosnian regiment recruited from a district where tuberculosis was rife, and (2) a Hungarian regiment recruited from a district poor in cases of tuberculosis, bore repeating because of their importance in connexion with the incidence of tuberculosis infection in young adults, and the value of the tuberculin test in the diagnosis of tuberculosis.

To eradicate the disease from man effectively it would seem necessary to have a certain preventive against the infection. This we did not possess. But we did know the sources of infection, and it was our duty to protect everyone from such sources. It was distressing under the circumstances to read in Dr. Marcus Paterson's book the statistics culled by Dr. Sutcliffe, of the Ipswich Sanatorium, on the use of the sputum flask by tuberculous patients in this country as recently as 1918. Of patients admitted to the sanatorium on the advice of medical men 93·75 per cent. had sputum before admission. In 57·77 per cent. bacilli had been found previous to admission. Only 8·88 per cent. of those with sputum arrived at the sanatorium with a flask. Paterson also pointed out that the control of milk, butter, and cheese could be much more efficiently carried out than was the case to-day.

Three Desiderata.

In the absence of a certain preventive against infection we required the following desiderata urgently: (1) A method of diagnosing the disease in its earliest stages; (2) a successful method of treating the disease; and (3) a method of ascertaining that the disease was cured.

1. *A Method of Early Diagnosis.*—In the case of tuberculous infection we had as yet no certain means of diagnosing the disease in its earliest stages. Owing to the large number of apparently healthy persons who gave a positive reaction, the tuberculin test had proved to be of but limited value in the early diagnosis of the disease. The demonstration of tubercle bacilli in the sputum only became possible when the tuberculous ulcer communicated with a bronchus—i.e., the bacilli were not demonstrable in the earliest stages of the disease. The great value of the test, however, could not be too strongly insisted upon from the point of view of the public health. It should be possible to examine the sputum of all patients who consulted a doctor for cough with sputum, whatever physical signs or symptoms they presented. Even to-day it was not uncommon to find numerous tubercle bacilli in the first sample of sputum examined for a patient who had been under medical treatment for months. From the patient's point of view the examination was one of very considerable importance, for the tuberculous focus in the lung was, when tubercle bacilli were present in the sputum, in communication with the outside world, and was liable to become contaminated with bacteria other than the tubercle bacillus. From the following table, summarising the results of an investigation which he had carried out in 1912, it would be seen that secondary infections were by no means uncommon in "open" pulmonary tuberculosis. (Table IV.):—

TABLE IV.

—	Febrile cases.	Afebrile cases.
A. Infection by T.B. and secondary organisms	28 (87·5%)	13 (54·1%)
B. Infection by T.B. alone	4 (12·5%)	10 (41·6%)
C. Infection by secondary organisms alone	0	1 (4·1%)
—	32	24

It was an urgent matter to place the patients in as pure an atmosphere as possible and away from congested areas in which the air was liable to be polluted with catarrhal micro-organisms. There was a striking contrast between the bacterial flora of sputum in London and that of patients living in pure country air. He believed that the good results obtained from the so-called open-air treatment of pulmonary tuberculosis was largely to be attributed to this limitation of the sources of secondary infections. The technique of the tuberculo-opsonic index was difficult, and its routine use, as in a large institute, was a very great strain on the individual who carried out the test. An analysis of 250 cases of doubtful pulmonary tuberculosis performed in the routine laboratory tests of the Brompton Hospital gave the results shown in Table V. :—

TABLE V.

Cases without T.B. in sputum.	No. of cases.	Positive.	Negative.
Clinically tuberculous disease ...	56	48 (85·71%)	8 (14·25%)
Doubtfully tuberculous disease ...	134	91 (67·91%)	43 (32·08%)
Clinically non-tuberculous disease	60	4 (6·66%)	56 (93·33%)

In 100 cases with a positive index and no tubercle bacilli in the sputum special care was taken over a subsequent period of about two years to try to find tubercle bacilli by numerous examinations of the sputum, and in 14 cases the bacilli were found confirming the diagnosis. In a small series of cases, doubtfully tuberculous, and admitted to the hospital for diagnostic purposes the tuberculo-opsonic index test and the complement-fixation test were carried out on each patient. In 21 out of 30 cases (70 per cent.) the two tests agreed; in 5 out of 30 cases (16 per cent.) the T.O.I. was positive and the C.F.T. was negative, and in 4 out of 30 cases (13 per cent.) the T.O.I. was negative and the C.F.T. was positive. In a series of 42 cases at the King Edward VII. Sanatorium, Midhurst, Dr. Radcliffe and Dr. de Wesselow made a similar observation. In 32 cases (76 per cent.) the two tests agreed; in 7 (16 per cent.) the T.O.I. was positive and the C.F.T. was negative, and in 3 cases (7 per cent.) the C.F.T. was positive. Further work was necessary to enable us fully to understand the mechanism of the test. In 1913 an investigation was carried out at the Brompton Hospital on the value of the complement-fixation test as an aid to early diagnosis. Besredka's antigen was used, and though the results were encouraging it was found that the antigen was not truly specific, for positive reaction was obtained with syphilitic non-tuberculous sera. In a series of 107 consecutive cases admitted to Dr. W. C. Bosanquet's wards the bloods were sent to the laboratory for examination, and Dr. Bosanquet independently recorded his diagnosis after due clinical observation. There was a remarkable agreement in the diagnosis. In 1920, several years after the bloods had been examined, he (Dr. Inman) had tried to find out what had happened to those patients who had had no tubercle bacilli in their sputum at the time of the blood test. Only 29 cases could be traced. McIntosh and Fildes had suggested in 1914 the use of a fresh suspension of living tubercle bacilli as an antigen in the complement-fixation test for tuberculosis.

Such an investigation had been instituted at Brompton, and the test promised to be one of real utility. Before any considered announcement could be made, however, further research was needed, more especially with regard to the specificity of the reaction, and to state the activity of the lesion in those cases in which the reaction was positive. Infallibility could not be expected of any biological test, and it was doubtful whether, seeing that the general population of this country was largely tuberculous, such tests could ever occupy quite the position of practical utility in the diagnosis of tuberculous infections as the Wassermann reaction did in the diagnosis of syphilis.

2. *A Successful Method of Treatment.*—There was no known cure for tuberculosis. He believed, however, in the importance of the principles of auto-inoculation of bacteria and their products enunciated by Sir Almroth Wright. As the results of laboratory experiments the importance of absolute immobilisation of a tuberculous focus from which excessive auto-inoculations were proceeding received specific confirmation. The revelation of a rich content in antibodies in certain pleural effusions had led Perkins, Young, and Meek to inject such fluids for therapeutic purposes in seriously infected cases of pulmonary tuberculosis, with encouraging results. He believed that the intelligent administration of tuberculin and vaccines prepared from secondarily infecting microbes might still serve to convert a seemingly hopeless outlook in some cases into one of so great amelioration that life for the patient became tolerable and even enjoyable.

3. *A Method of Ascertaining whether Cure Took Place.*—No certain means of ascertaining when a tuberculous infection was cured as yet existed. He spoke of the vital-capacity test as formulated by Dreyer. In a preliminary series of 150 cases of pulmonary tuberculosis weighed, measured, and treated by Dr. L. S. T. Burrell at the Brompton Hospital in London, Professor G. Dreyer at Oxford, by calculation of the figures sent to him by Dr. Burrell, was able to classify these persons as normal individuals, or as examples of mild, of moderate, or of severe pulmonary tuberculosis, in practically absolute agreement, as afterwards appeared, with the clinical diagnosis and classification made at the time at Brompton.

In proved tuberculous cases he believed that a series of blood examinations as regards the Arneth count might prove to be of distinct value in the testing of a case as to arrest of the disease. Dr. Treadgold, working in his laboratory, had come to the conclusion that a left shift under 200 in old cases of "clinical arrest" was suggestive of recurrence, and called for minute and careful re-examination. He urged that a record of the serum reactions, quantitatively estimated, should be kept of all cases evacuated from sanatoriums as "clinically arrested." He thought that most of the patients so discharged were probably still in need of treatment, and their lesion was still in communication with the blood and lymph stream. The verification of this might lead to a prolongation of treatment and a diminution in the number of relapses.

Influence of Environment on Resistance.

Dr. HALLIDAY SUTHERLAND said that an increase of knowledge regarding the details of tuberculosis could never lead to more than partial success in the task of eradication unless there was agreement concerning certain general principles. Since the discovery of the tubercle bacillus medical opinion on the ætiology of the disease had swung from one extreme to another. If asked the cause of tuberculosis the majority of people would answer "the tubercle bacillus." That answer was wrong. Tuberculous infection was ubiquitous, and after middle life practically everyone was infected. If the tubercle bacillus was the cause of the disease—using the word cause in its true sense—then mankind would have been decimated long ago. Tuberculosis as a disease was produced by two factors—infection and resistance of the tissues. The relation of these two factors was shown in the animal experiments of Trudeau in 1885. When resistance was unimpaired it was difficult to infect either a man or an animal, and when man lived under conditions in harmony with nature tuberculosis was a rare disease. Even to-day there were primitive races free from tuberculosis, and in the south of Spain amongst the fighting bulls living on the open plains tuberculosis was very uncommon, although domestic cattle in the same country were notoriously tuberculous. Such was the influence of environment on resistance. If resistance was unimpaired, either a massive dose of bacilli or prolonged exposure to infection was necessary for the development of the disease, and it was easier to induce the disease in a starved animal than in one well fed. To eradicate the malady it was necessary to raise or to maintain resistance, and to prevent infection.

As the bovine tubercle bacillus had been recovered in over 50 per cent. of cases where tuberculosis attacked the glands, bones, and joints of children, it was probable that some 10,000 children died every year in consequence of drinking tuberculous milk. Sir John McFadyean had said that to eradicate the disease in cattle it would be necessary, amongst other things, to slaughter 1,000,000 animals. That was not the experience of the American Government. By the Bang system tuberculosis could be eradicated from a herd within seven years, and it was only necessary under that system to slaughter the animals having advanced disease. As tubercle bacilli were present in the milk from animals whose udders were not affected, the Tuberculosis Order of 1912 would only check the gross infection of milk, and could not secure a tuberculosis-free milk. There were two extreme views on the question of tuberculous milk, and in attempting to reconcile these extremes by adopting a neutral attitude Professor Cummins had involved himself in certain very obvious contradictions. Professor Cummins deprecated the gross infection of milk, welcomed the Tuberculosis Order, and hoped that we should benefit by drinking the slightly infected tuberculous milk that would continue to exist after the Order was put in force. It was true that Dr. Brownlee had shown the chronic type of pulmonary tuberculosis to be correlated with milk, but there were many other factors with which it might be correlated. Those who believed in the benefits of drinking tuberculous milk should advocate the vaccination of children with attenuated cultures of tubercle bacilli. The dosage could then be controlled, and those who urged this plan would at least be logical. That plan would not be advocated. The work of Arloing had first shown that immunity conferred in this way was both partial and transient. Calmette more recently had shown that the resistance of an infected animal could be raised and prolonged by these measures. If Dr. Brownlee's views were correct then this partial immunity would lead to an increase in the number of chronic cases, whereby the amount of infection amongst the population would be increased. Those who played with the question of tuberculous milk would do well if they followed their opinions to a logical conclusion. Remarks by medical men on the advantages of tuberculous milk did a great deal of harm, not amongst the medical profession, who were able to assess their value, but amongst dairy farmers and the general public. These statements were seized upon by the trade and used as an argument against legislation, which, however imperfect it might be, had for its aim the preservation of the life and health of children. Professor Cummins had also said that the milk trade was in an unsatisfactory economic condition on account of the bulk of fluid milk and of the difficulties in transport, to overcome which he advocated dried milk. As dried milk was much more expensive than fresh milk this proposed remedy was obviously economically unsound.

By far the greatest source of infection was from human beings, and in order to eradicate the disease it was necessary to correct the faulty environment whereby resistance had been lowered, and to check the amount and spread of infection. It was impossible to alter the general defects of our civilisation to any material extent, but it was possible to alter the environment of the individual patient. Unless this was done in the early stages of the disease the change came too late. That meant early diagnosis. Everyone would welcome the advances in bacteriology of which Dr. Inman had spoken, and to which he had contributed so much, but there was a real danger lest a type of practitioner was evolved who relied solely on a laboratory for diagnosis and failed to use the senses that God had given him. In spite of many difficulties it was already possible by means of clinical methods, X rays, and the tuberculin subcutaneous tests to make a firm and accurate diagnosis of tuberculosis months and even years before tubercle bacilli appeared in the sputum. A chair of tuberculosis should be created in every university, and competent clinicians, having special experience in this disease, should be appointed to teach the students.

Once the disease had been diagnosed the next step was to provide adequate treatment for patients in all stages of the malady. Sir Robert Philip's coördinated Edinburgh system provided for all contingencies. The tragedy was that the system had not been carried out on the lines advised by the Departmental Committee in 1912. Sanatorium results were bad because the sanatoriums were filled with advanced and dying cases. When early cases were sent and kept for an adequate period the results were uniformly good. As tuberculosis was essentially a disease of civilisation, there was no short cut to its control and eradication.

Combined Medical and Veterinary Effort.

Professor F. HOBDAY had no doubt as to the value, in any scheme for the eradication of tuberculosis, of

collaboration between the medical and veterinary professions, as each was well acquainted in their respective everyday lives with the disease in all its forms. The question of clean milk certainly could not be settled except by combined action between the two.

In his original paper he had purposely generalised in various diseases communicable to man, with a view to emphasising the importance of united effort on the part of the workers in human and veterinary medicine; but when, at the request of the members present, the discussion was adjourned and it was suggested that one of the subjects only should be taken, he readily acquiesced, and eradication of tuberculosis from man and animals was chosen. It was the subject which he had suggested as being of far too great importance to be grouped with others, one which must of necessity be taken by itself, and one about which every scientific worker, whether in the laboratory or clinical sphere, could say something. Particularly was it of importance just now on account of the new hopes which were being raised by the report of the work recently done on immunity by vaccinations, and here again the observations made upon animals must take first place. Much for mankind depended upon the results here to be attained, and the whole research was still a further corroboration of the advantage of collaboration between those who had expert knowledge of the normal habits of animals as well as man. Taking all the diseases originally mentioned in his lecture, and even if the cases of actual transmission were, as Sir John McFadyean had said, only enough for the average man to see once in three years or once in ten years, this was all the more an argument for keeping them out of the country, and it was all the more to our credit if we did this. What would be the position now if the veterinary profession had not done its duty in the past with regard to glanders and rabies? It was to the veterinary side of comparative medicine that the country owed this excellent position at the present time, and if we could find the way to do as much for tuberculosis of cattle as we had done for the eradication of glanders from horses we should again have rendered mankind a service. As regarded tuberculosis in cattle, it was possible to eradicate it by the aid of tuberculin if cost was no objection. It was the cost together with the question of the milk-supply which stood in the way. That bovine infection was a reality was shown by statistics brought forward that evening by Dr. Inman, who had told us that 18·7 per cent. of all cases were of bovine origin; that in tuberculosis of the glands of the neck of very young children the proportion went up to 85 per cent., and between 5 and 10 years of age 65 per cent., whilst another speaker had said that of this form of tuberculosis an average of 10,000 children died annually. He thought that the discussion and the interest shown by the mixed assembly of medical and veterinary professions proved the truth of the last paragraph of his original paper: "that in the combat against disease the workers in human and veterinary science go over much the same ground, and that by working in unison much valuable time might be saved and much better results would be attained than if each kept itself in its own water-tight compartment."

A Unanimous Resolution.

The following resolution was passed unanimously:—

That the Fellows of the Royal Society of Medicine and officers of the National Veterinary Association, assembled in joint meeting, are of the opinion that the prevalence of tuberculosis among cattle in this country continues to be a serious menace to the health of human beings, and that to counteract this danger the reintroduction of the Tuberculosis Order, which was suspended in 1914, is urgently required.

SECTION OF PATHOLOGY.

A MEETING of this section of the Royal Society of Medicine was held on March 15th, Dr. W. S. LAZARUS-BARLOW, the President, being in the chair.

Dr. J. A. MURRAY read a paper contributed by Dr. W. H. WOGLOM and himself on Experimental Tar Cancer.

Dr. A. J. EAGLETON read a paper on

The Standardisation of Antipneumococcal Serum.

The work of American bacteriologists, he said, had differentiated four groups of pneumococci. Groups I., II., and III. were definite entities, there being three subgroups to Group II. Group IV. consisted of a heterogeneous collection of pneumococci unrelated to each other, or to the first three groups. Therapeutic serum (type I.) had been used in America with encouraging results. There was less evidence of the value of types II. and III. sera, and American opinion was at present against their use for therapeutic purposes. A serum for therapeutic use had been prepared at the Wellcome Physiological Research Laboratories by immunising horses with a type I. pneumococcus. It had been tested (almost entirely with an English strain) by a method almost identical with that used in America. The test consisted essentially in the titration of 0·2 c.cm. of serum against different doses of living pneumococcus culture. Mice are employed and the injections made intraperitoneally. Adequate controls must be made, and all injections done in duplicate. Care must be taken in dilution of the culture prior to the test, as very grave errors could be introduced by carrying over organisms from tube to tube.

Upon three main factors the success of the test depended:—

(1) *The mice.*—Gaertner infections accounted for many failures; in other cases, although no specific extraneous infection could be found, the animals succumbed irregularly from general deficiency of resisting power. Feeding must be carefully watched, exposure to cold avoided, and the animals should be kept under experimental conditions for at least one day before injection.

(2) *The media.*—The virulence of a culture might apparently be lost by growth on unsuitable media; the virulence returned when the organism was given a suitable environment. The broth must not be more acid than pH = 7·2, and to maintain this reaction a heavily buffered peptone was necessary. The medium should not be over-heated. Cultures maintained on horse-blood agar had lost their virulence, to regain it on transference to sheep- or rabbit-blood agar. This was correlated with the fact that certain horses contained a normal antibody to the pneumococcus. Rabbits did not. Sheep had not been tested. Two interesting speculations arose out of this: (*a*) Was the presence of normal antibodies in the blood of some animals responsible for variations in growth of micro-organisms on media containing unheated blood; (*b*) did it help to explain the value in some cases of non-specific horse-serum therapy.

(3) *The micro-organism used.*—The culture must be virulent. The strains used were virulent when received. They had not been passaged and were still virulent. While not stating that passage is unnecessary for maintaining virulence, the workers held that too much attention had been paid to it, and too little to the media employed.

Serum made to protect against type I. American strain was efficient against English strains. Protective serum had also been made against type II., but by the test described this had not at present the same high degree of potency as the type I. serum. Large doses had been given intravenously to rabbits without producing any untoward effects.

Dr. NATHAN RAW read a paper on the

Attenuation of Tubercle Bacilli.

He showed numerous cultures and specimens of tubercle bacilli which had been continuously subcultured for 14 years. These bacilli were now avirulent and non-tuberculigenic, after repeated tests on susceptible animals. The object of this work was to endeavour, if possible, to find a specific remedy against tuberculosis and to protect children of tuberculous stock who were exposed to infection in the home.

CARDIFF MEDICAL SOCIETY.

A MEETING of this society was held on March 8th, Dr. W. MITCHELL STEVENS in the chair, when Professor T. GRAHAM BROWN delivered an address on

Experiments on the Brain.

He first sketched the history of the work on brain areas, and then described certain experiments carried out on chimpanzees. Stimuli applied to the motor areas, although at first subminimal, were found, when repeated, to cause movement, an effect known as "facilitation." Similar stimuli applied to one area made neighbouring areas sensitive to subminimal stimulation, an effect known as "activation"; this effect was due to fibres in the cortex connecting neighbouring areas. Destruction of motor areas in the cortex was followed by only temporary paralysis, and complete restitution of movement was soon regained; this result followed when the cortex was ablated on both sides. This restitution also followed the destruction of sensory areas on both sides and of the motor area on one side. Professor Brown pointed out that the work was as yet far from complete, but he put forward the suggestion that the deeper structures of the brain controlled postural movement, while the cortex was more concerned with fine manipulation.

LIVERPOOL MEDICAL INSTITUTION AND MANCHESTER MEDICAL SOCIETY.

A JOINT meeting of these societies was held at Liverpool on March 3rd, the President of the former, Dr. J. E. GEMMELL, in the chair.

Vascular Lesions of the Brain.

Professor E. S. REYNOLDS mentioned some points arising in connexion with vascular lesions of the brain, quoting illustrative cases. He specially referred to meningeal hæmorrhage occurring during birth, to emboli and their results, and compared these in their symptoms and course with thrombi and hæmorrhage. He alluded to the difficulty which often occurred in diagnosing whether a hemiplegia was due to thrombus or hæmorrhage, and the consequent difficulty in treatment.

Posterior Rhizotomy.

Sir WILLIAM THORBURN gave an account of cases of Posterior Rhizotomy and of Drainage of the Spinal Theca. As regards rhizotomy, he related several personal cases in which the operation had been performed for gastric crisis, and analysed the published records. With regard to rhizotomy for pain, he indicated, again from personal cases, why in many instances relief was not to be anticipated and why the results are less satisfactory than in gastric crises. He did not recommend Foorster's operation for spastic paraplegia. He then referred to cases resembling transverse myelitis, in which drainage of the theca spinalis was followed by rapid recovery. He recalled the earlier work of Horsley on so-called chronic spinal meningitis, and strongly urged the exploration of any doubtful cases of this type, pointing out that in practised hands the operation of laminectomy is as safe and reliable as is laparotomy.

Diathermy and Pharyngeal Operations.

Sir WILLIAM MILLIGAN read a paper upon the Treatment of Inoperable Malignant Growths of the Pharyngeal and Epilaryngeal Regions by means of Diathermy and Radio-diathermy. He pointed out the type of case suitable for diathermy treatment and described the rationale of the treatment. In cases where diathermy was done close to large blood-vessels great care had to be taken, as otherwise there was a risk of sloughing of arterial walls and severe secondary hæmorrhage. In many cases it was advisable to tie the main blood-vessels leading to the affected regions. Diathermy treatment had the advantage of sterilising the tissues, blocking the lymphatics and small blood-vessels, and of readily destroying malignant cells owing to their having in all probability a lower vitality than normal cells. In cases where the growth to be treated was situated in the immediate neighbourhood of the larynx, it was advisable to perform a preliminary tracheotomy. In small growths the best results appeared to follow the use of a current of from 500 to 900 milliampères, but in large growths of one to two ampères were necessary. Where there was much necrotic tissue it was a good plan to perform a preliminary scraping, great care being taken, however, to avoid any bleeding as far as possible. The pain produced was, as a rule, not great until about the eighth or tenth day, when it was considerable owing to the separation of the slough and the formation of a raw granulating surface. The presence of glands did not negative diathermy operations, and glands might be treated either by diathermy itself or by intensive X ray treatment. Where intensive X ray treatment was used it was advisable to desensitise the skin either by the application of pressure or by the subcutaneous injection of salt solution. The advantages of diathermy were: 1. That it might be employed when ordinary surgical procedures are impracticable. 2. That it does not produce much, if any, shock. 3. That with reasonable care it is a bloodless procedure. 4. That it has the merit of sterilising the tissues, tblocking vascular and lymphatic vessels and preventing the dissemination of the cancer cell. 5. That it frequently affords relief from painful symptoms and mechanical difficulties in cases surgically hopeless. 6. Septic and broncho-pneumonia are much less frequent than after cutting operations. Its disadvantages are: (1) that it destroys both healthy and diseased tissues. (2) that the walls of adjacent blood-vessels may become softened and secondary hæmorrhage result; and (3) where the skin is involved keloid cicatrices may result. He referred to a series of inoperable surgical cases where, by means of diathermy, life has been prolonged for from two and a half to three years with complete comfort.

Variations of the Normal Stomach.

Dr. A. E. BARCLAY discussed the Variations of the Normal Stomach. He maintained that the old anatomical pictures were caricatures, and that the distortions were due to the action of formalin or other preservatives, coupled with the effect of rigor mortis. Essentially the stomach was a living muscular tube, whose very varied alterations in appearance was largely due to alterations in muscular tone. The tonic action was a function of the living muscle, and could only by studied in life by means of X rays. The main function of this tonic action was to stabilise the stomach so that it maintained the contents in tubular form in spite of gravity. When tone relaxed the contents descended to the lowest part of the stomach. He demonstrated models of normal empty and full stomachs, and also a series indicating the way in which its shape was changed by the alteration of posture. Tonic action was responsible for the maintenance of the shape of the normal stomach, and he insisted that transitory loss of tone and gastroptosis were simply variations of the normal. He then dealt with the musculature, and laid great stress on the great importance of the innermost layer, the incomplete and powerful band of oblique fibres that passes down on either side of the lesser curvature and illustrated the band by a series of dissections by Jefferson. He pointed out that in atony this oblique band was apparently unaffected, while the rest of the muscle was thinned out. In gastroptosis, on the other hand, the oblique fibres were elongated proportionately with the other coats. He also showed slides of a type of normal stomach which he called the "cup and spill." This curious shape, he suggested, was due to over-contraction of this oblique band without a corresponding contraction of the other coats. From these observations he deduced that the oblique fibres could act entirely independently of the other coats, and that, in all probability, the anatomists would find that they had a separate and independent nerve-supply.

ROYAL MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.

THE eighth meeting for session 1920–21 was held in the Faculty Hall on Feb. 18th, when Professor ROBERT MUIR gave a lecture, with microscopic demonstration, on

Hæmochromatosis and Bronzed Diabetes.

The development of our knowledge of the subject was briefly sketched, and it was pointed out that the essential pathological feature was the deposit of iron-containing pigment in great amount and in unusual positions, this resulting in hæmochromatosis; and that diabetes resulted only when the lesion in the pancreas was of sufficient degree, there being cirrhosis in this organ as well as in the liver. Two cases were described in which both bronzing of the skin and diabetes were present, and reference was made to the estimations of iron made in one of these along with Professor Shaw Dunn. An account was also given of two, and possibly three, cases at an early stage of the affection, and from these the inference was drawn that the earliest lesions were cirrhosis of the liver and pancreas, with deposits of hæmosiderin in these organs and in the retro-peritoneal lymphatic glands. In the pancreas the changes occurred at an earlier period in the secreting epithelium than in the islands of Langerhans, but the

results did not warrant a conclusion as to the relation of the lesions in these structures to the onset of diabetes.

The lecturer contrasted the deposits of pigment with those occurring from abnormal hæmolysis, and pointed out that they differed both in amount and in distribution, those in hæmochromatosis being much greater and occurring in sites, such as thyroid, heart muscle, skin, stomach, &c., in which hæmosiderin resulting from hæmolysis did not occur. From these facts and from the fact that in hæmochromatosis there was no evidence of increased blood destruction or regeneration it was not justifiable to conclude that the iron pigment was actually derived from hæmoglobin. There might be an inability to use up again the iron derived from normal hæmolysis, but in this case the peculiar distribution of the pigment could not be explained.

The essential factor in hæmochromatosis appeared to be a special affinity of the tissues and organs for iron, and the source of the stored iron must ultimately be the iron in the food, but whether or not this passed through the form of hæmoglobin was not certain. The cirrhosis of the liver and possibly of the pancreas seemed in some way to be related to this abnormal metabolism of iron, but there must be some special factor, as in most cases of cirrhosis of the liver the accumulation of pigment was absent. The accumulation of iron must go on for a long period of time, sometimes for two or three years, even if all the iron in the food were retained. Reference was also made to recent analyses of food and excreta, indicating that there was an actual retention of iron.

BRISTOL MEDICO-CHIRURGICAL SOCIETY.

Teething.

A MEETING of this society was held on March 9th, Dr. L. E. V. EVERY-CLAYTON, the President, in the chair, when a discussion on Teething was opened by Dr. R. C. CLARKE, who began by saying he did not believe in the so-called symptoms of teething.

From the days of Hippocrates till the early part of last century "teething" was held to be the cause of all infant maladies, and some 50 per cent. of the infant mortality was attributed to it. A number of ridiculous superstitions arose, some of which survive to this day, such as the impropriety of healing a sore on a baby's head or curing an otorrhœa before the completion of dentition. In the middle of the nineteenth century doubts began to arise. In modern textbooks the subject was mostly dealt with by "hedging." The argument in one of these, that so many intelligent parents could not have been deceived, Dr Clarke held to be most fallacious, and he instanced the beliefs in witches, the evil eye, and overlookings which were upheld for centuries. After touching on views as to the process of eruption of a tooth, a process which he maintained was normally painless, he called attention to the fact that a baby is always cutting teeth from 6 months to 2 years old. He then went through the symptoms usually attributed to a baby being "about his teeth," such as dribbling, biting on hard objects, and so on, and gave an alternative explanation in each case. Disorders regarded as complications of teething, such as gastro-enteritis, and colds in the head, with consequent otitis, bronchitis, &c., were, he said, infective in origin in the first six months of life, and asked why their relapses after that date should be ascribed to teething? He did not deny that there was such a thing as painful dentition. Going through the various "scientific" theories advanced to support a popular idea, he said he could not see why reflexes from the fifth nerve should upset one system more than another.

Dr. Clarke said that there were two main classes of opinion. To those who really believed in "teething troubles" he had nothing to say, because their idea, often learnt at their mothers' knees, was as firmly fixed as their religious and political opinions. There were, however, those who, though not really believing in "teething troubles," yet thought it a harmless and eminently useful diagnosis, and it was to these that Dr. Clarke addressed his remarks. He firmly believed that nearly all minor ailments of babies were preventable, and that if medical men would instruct mothers how to avoid diarrhœa and colds they would get better results than by being content to say "It's teething." Moreover, the symptoms of early rickets, the most frequently overlooked of all diseases, were just those—convulsions and catarrhal infections—which were commonly attributed to teething.

Discussion.

The PRESIDENT confessed to a belief in teething as a source of rashes.—Professor F. H. EDGEWORTH thought it was improbable that any reflex irritation could provoke convulsions.—Dr. J. O. SYMES took the view that the belief in teething as a source of symptoms was a harmless and often comforting superstition.—Mr. W. R. ACKLAND spoke of the sudden relief to symptoms afforded by the opening of a gum, a fact corroborated by Mr. A. W. PRICHARD.—Mr. E. A. G. DOWLING attested the truth of the reference of aural pain to teething, and Dr. P. WATSON-WILLIAMS thought that the process of teething might actually lower the resistance of the ear to infection and predispose to otitis.—Mr. E. H. E. STACK showed that it was possible to distinguish between referred and direct aural pain.—Dr. R. S. STATHAM quoted experiences to show that in the second dentition it was sepsis that introduced an element of pain, and Dr. V. M. COATES spoke of bacteriological data supporting the infective theory of pain in the first dentition also.—Professor WALTER C. SWAYNE said that children's weights "mark time" and do not increase during teething, and observed that the coincidence of changes of diet with the period of teething might explain the coincidence of digestive disturbances with teething.—Dr. C. E. K. HERAPATH supported Dr. Clarke's view that it was time to relegate belief in teething as the cause of disorders to the realm of exploded myths.—Mr. G. F. FAWN gave reasons for believing that teething was often a painful process.—Dr. C. F. COOMBS suggested that the absence of complications from the second dentition supported Dr. Clarke's arguments.—Dr. CLARKE replied.

SOCIÉTÉ DE THÉRAPEUTIQUE DE PARIS.

AT a recent meeting of this society Dr. LESNÉ read a paper on

The Posology of Sodium Salicylate in the Child,

in which he emphasised the tolerance of the child for this drug and the good effects derived from its administration by enemata or intravenous injections in doses of 0·5 g. per c.cm. The tolerance to salicylates in childhood, shown by absence of tinnitus, delirium, and albuminuria, was doubtless due to the perfect condition of the renal emunctories in early life, as the salicylate appeared in the urine less than 24 hours after its ingestion.

The Hypodermic or Intravenous Injection of Allyltheobromine.

Dr. ROSENTHAL stated in a communication on this subject that though theobromine was regarded by Huchard as the most reliable diuretic, it was often ill tolerated in doses of 2 g. and a fortiori in doses of 3 or 4 g. On the other hand, allyltheobromine, which was 150 times more soluble than theobromine, could easily be injected in the form of a neutral solution hypodermically, intramuscularly, or intravenously. Dr. Rosenthal therefore recommended that in all cases of intolerance for theobromine allyltheobromine should be substituted in intramuscular injections of 0·30 g. twice a day. The intravenous method should be reserved for urgent cases or for those in which the presence of an œdematous infiltration contra-indicated the hypodermic route.

The Action of Heliotherapy and Phototherapy on the Præcordial Pain of Angina Pectoris.

Dr. ARTAULT DE VEVEY recorded two cases in which this treatment caused immediate relief and finally complete disappearance of anginal attacks occurring in patients with cardiac disease.

The Cholagogic Action of Polypodium Vulgare.

Dr. H. LECLERC stated, in a communication on this subject, that the rhizome of this fern, which was a favourite remedy in ancient times, was a powerful cholagogue without any irritative action. He related the case of a girl suffering from catarrhal jaundice whose symptoms had proved refractory to all the usual remedies, but soon subsided after the use of this rhizome.

The Treatment of Epidemic Encephalitis.

Dr. MULLER, of Liége, recorded three cases of the myoclonic form of epidemic encephalitis in patients aged 42, 33, and 13 respectively, in whom intravenous injection of iodine oil caused a rapid disappearance of the symptoms. The doses ranged from 6 to 15 c.cm. and from three to six injections were given in each case.

THE Chelsea Hospital for Women has received £100 from Mr. T. G. Sorby and £25 from Lady Northcote towards the building of its nursing home.

Reviews and Notices of Books.

TUBERCULOSIS.

1. *Traité de Pathologie Médicale et de Thérapeutique Appliquée.* Tuberculose. (1) La Tuberculose en Général. (2) La Tuberculose de l'Enfant et de l'Adulte. Les Tuberculoses Viscérales. Edited by ÉMILE SERGENT, L. RIBADEAU-DUMAS, and L. BABONNEIX. Paris: A. Maloine et Fils. 1920 and 1921. Pp. 379 and 811. Fr.20 and Fr.35.

THESE two large volumes, which contain numerous black and white as well as coloured illustrations, include a series of articles on different aspects of tuberculosis by writers whose names are in themselves a certain guarantee of the value of the opinions expressed. Like most systems of medicine compiled by several writers, these volumes are good in parts; indeed, in most parts; as an index to the present vogues of treatment they are illuminating. More than 50 pages are devoted to an account of artificial pneumothorax treatment, and in the space of less than six pages vaccine therapy, including tuberculin, is handled with merciless scorn. Dr. Joussett stamps tuberculin as a pseudo-vaccine which both in theory and in practice is a gigantic failure. So it may be. But it is a curious fact that tuberculin therapy has survived for more than 30 years, during which its obsequies have been frequently celebrated with even greater gusto than Dr. Joussett devotes to them. Of serotherapy he is more hopeful, and he discusses this line of treatment at considerable length. Both volumes contain a mass of useful information presented in a highly readable and assimilable form.

2. *A Study in the Epidemiology of Tuberculosis.* By GEORGE E. BUSHNELL, Ph.D., M.D. London: John Bale, Sons, and Danielsson. 1920. Pp. 221. 20*s*.

Colonel Bushnell, who is Honorary Vice-President and Director of the National Tuberculosis Association of the U.S.A., calls this book a study of the epidemiology of tuberculosis. As such it is remarkably incomplete. Many and important epidemiological aspects of tuberculosis are totally ignored or only briefly referred to. But as a study of one aspect of the problem this book is of great value, because, in his advocacy of only one school of thought, the author has collected most of the available evidence supporting this school and has moulded it into a very convincing thesis. With engaging frankness he confesses that his views, as set forth in this book, are not supported by any original investigations. His aim has been rather to collect and discuss epidemiological data which have hitherto been buried away in inaccessible journals written in foreign tongues. Copious extracts from papers, mostly German, have been made, and it is evident that Dr. Bushnell's views are largely the expression of the teachings of Römer and others.

The gist of his message is that the first infection more or less decides the subsequent fate of the patient, whose susceptibility to reinfection from without is no greater than that of a syphilitic to reinfection with syphilis. "There is no good reason why disease caused by the virulent and highly resistant tubercle bacillus should form an exception to the law that reinfections do not take place so long as the infectious agent is present." The author goes on to show that, while the *mortality* from tuberculosis rises and falls with the general mortality and environment, there is practically no change in its *morbidity*. The author stamps as "the error of modern times" the denial of the teaching that a first infection prevents renewed infection from without. But once this elementary hypothesis is used as a key to the seemingly complex problems of tuberculosis "the riddle of the centuries" is solved. To readers intrigued by the notion that consumption can be eradicated by a wholesale roping in of sputum-positive cases in segregation camps it must seem rank heresy when the author writes "..... the consumptive, much to be dreaded as he is at close quarters for the uninfected, is indispensable in the present era because he unwittingly provides for that immunisation which prevents our race from perishing, as so many other races have perished when thrust unprepared into the midst of infection." This book is to a great extent an exposition of Römer's law, according to which tuberculosis runs an acute and fatal course in communities where it is rare, and a chronic and relatively benign course where the disease is common. Or, that contact with tuberculosis affords a certain protection against it.

After reviewing the literature dealing with tuberculosis in highly civilised and primitive races, and the invaluable evidence provided by v. Pirquet's test, the author shows with convincing logic that the solution of the problem is to be found in the conditions under which infection first occurs. In civilised communities the problem is thus referred to very young children. If these can be protected against a large initial infection an all-important step has been taken. He quotes Pollak of Vienna as showing that after the age of 4 children do not appear to be unfavourably affected by the entrance of a tuberculous individual into the family circle, while those of lesser years grow up more delicate. When a child has recently become infected, as shown by v. Pirquet's test, the greatest possible care should be taken of it "to the end that the infection may remain latent." There can be no doubt, the author argues, that the first half-year after infection is a critical time for the child. "Proper attention at this time would do more to lower the morbidity and mortality from tuberculosis than anything except preventing the infant from coming into contact with the consumptive." The author's views on bovine infection are summed up in the following: "It is an Utopian dream ..... to hope that the tuberculous infection of cattle will ever be totally eradicated. But if this is not done, given the disappearance of the typus humanus, immediately bovine tuberculosis rears its horrid head, probably as formidable a menace as tuberculosis of the human type has ever been!" Being convinced that we must live with the tubercle bacillus if we are to enjoy the benefits of tuberculisation, the author regards a "sterilisatio magna" as little short of disastrous, and the ultimate object of his ambition is the replacement of nature's methods of tuberculisation, so terribly wasteful of human life, by a thoroughly scientific method of artificial inoculation which need sacrifice no life. Whether Colonel Bushnell has actually solved "the riddle of the centuries" or not, he has at least put forward many cogent arguments in favour of an hypothesis which, if it prove correct, would greatly simplify the campaign against tuberculosis.

3. *The Early Diagnosis of Tubercle.* Third edition. By CLIVE RIVIERE, M.D., F.R.C.P. London: Henry Frowde, Hodder and Stoughton. Oxford Medical Publications. 1921. Pp. 318. 15*s*.

BARELY two years have elapsed since the publication of the second edition of this useful book, and little alteration has been made in the present edition. In the section dealing with the differential diagnosis of tubercle, an important improvement has been made by the inclusion of pulmonary syphilis as one of the conditions which may simulate tuberculosis of the lungs. The author does not consider syphilis a very common simulant of pulmonary tubercle, and he quotes McCrae and Funk as finding only four cases of pulmonary syphilis among 1200 cases at the Jefferson Chest Hospital. On the other hand, the author admits that syphilitic ulceration of the trachea and bronchi may be comparatively common and may give rise to signs, such as cough and dyspnœa, suggestive of various diseases other than syphilis. Discussing the differential tests, he puts the therapeutic test last, but he admits that the best evidence of a syphilitic lesion lies in its response to antisyphilitic treatment. Mercury he recommends with confidence, but the iodides he advocates with the reservation that they are apt to cause a congestive reaction in active tuberculous lesions. Another condition which he introduces for the first time into his discussion of the

differential diagnosis is pneumo-mycosis. In other respects, this third edition differs from the second chiefly in those finishing touches which every conscientious author wishes to add almost before his book has emerged from the press. With the recent, rather melodramatic exposures of incorrect diagnoses of tubercle, the need for an authoritative work on the early diagnosis of tubercle has become more than ever evident, and the author is to be congratulated on the lucid and comprehensive manner in which he has tackled a very difficult task. In the matter of percussion he is at his best—a best which leaves the possessor of an ordinary pair of hands humbly conscious of his deficiencies. We disagree with the author's aphorism that "where the teachers are at variance the tree of knowledge can hardly be expected to flourish." Discussion leads to truth, while untested views lead to dogmatism.

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4. *Die Lungentuberkulose.* Ihre Pathogenese, Diagnostik, und Behandlung. By Professor FELIX KLEMPERER. Berlin: Urban und Schwarzenberg. 1920. Mit 16 Textabbildungen und 5 Tafeln. Pp. 164. M.40.

WHEN an author in the preface to his book announces that it is intended not for students but for practitioners, he raises hopes that the jog-trot platitudes of orthodoxy will be abandoned in favour of a free exploration and discussion of new ideas and possibilities. In this case such hopes are, indeed, ultimately fulfilled, but before he is admitted to the author's own sanctum the reader must submit to a novitiate, during which he is regaled with such pabulum as: "The cause of pulmonary tuberculosis, as of every other form of tuberculosis, is Koch's bacillus." When he passes from such established facts to matters still in dispute the author's attitude is guarded and judicial; to the question whether pulmonary tuberculosis in the adult is due to endogenous infection resulting from disease in childhood or a new infection from without, he gives the safe, but not helpful, answer that both hypotheses may tally with the facts. Tuberculin treatment, he maintains, is to-day the "most important ætiological specific method of treating pulmonary tuberculosis." A few pages further on, and after a critical review of the literature of tuberculin therapy, he admits that tuberculin is "a useful support to general treatment, not more and not less." He is more emphatic on the subject of protein therapy, and he finds injections of milk, so vigorously puffed of late in certain quarters, as quite unsuited to replace tuberculin. His experiences of "partigen" treatment on Deycke-Much lines have left him unconverted. As for treatment with live cultures of acid-fast microbes, he has little hope to offer; he has given Friedmann's cultures in 40 cases, but even when the pulmonary disease was taken early, no marked benefit ensued from this treatment. In a short review of pneumothorax treatment the author opines that every operation fatality can be traced to air embolism, and that pleural reflex accounts only for some of the alarming symptoms not terminating fatally. Useful notes are appended to the symptomatic treatment of such trying complications as night sweats and cough.

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5. *Die specifische Percutanbehandlung der Tuberkulose mit dem Petruschkyschen Tuberkulinliniment.* By Dr. F. GROSSMANN. Berlin: Urban und Schwarzenberg. 1921. Pp. 76. M.12.

Dr. Grossmann throws into this booklet on the treatment of tuberculosis by inunction with Petruschky's liniment all the fervour that personal recovery under specific treatment is calculated to infuse. After undergoing Petruschky's treatment the author has, in conjunction with Petruschky, done much to put this treatment on a rational and systematic footing. Readers with a lurking suspicion that this method represents an inert, harmless placebo will note that the author finds it contra-indicated in the presence of high fever, mixed infections, and other debilitating conditions.

A PHYSICIAN'S ANTHOLOGY OF ENGLISH AND AMERICAN POETRY.

Selected and arranged by CASEY A. WOOD, M.D., and FIELDING H. GARRISON, M.D. London: Oxford University Press. 1921. Pp. 346. 8*s.* 6*d.*

THE appearance of another anthology requires justification, because if it is to be representative it must contain verses which have been published repeatedly in different forms. "A Physician's Anthology of English and American Poetry" has the best and most logical of origins; it was intended as a birthday offering on his seventieth birthday to Sir William Osler, "le physicien, le plus poéte que jamais," to paraphrase Liszt's description of Schubert. The prophet of international medicine did not live to see the book published, but the scheme and much of the contents had already passed through his hands, and he had given his approval. It is to his memory therefore that the volume is dedicated. The book is not a collection of verses by medical men, nor do the poems deal with medical subjects. It is, says Dr. Garrison in his foreword, difficult for a physician to find time and energy to read poetry; and it is this, and not lack of appreciation which deters them. The arrangement of this collection is intended to facilitate reading for these time-pressed doctors of medicine.

The volume is divided into 18 sections from "Youth and Manhood" to "Divina Mors," passing through such experiences as "Nympholeptos" and "Taedium Vitae," and the poems are chosen very widely. Thus we find in the anthology, under the heading "Amantium Irae," Shakespeare's "Let me not to the marriage of true minds" facing Rupert Brooke's "The Hill." And under the section "In War Time" Milton's "Captain or Colonel or Knight in Arms" precedes Walt Whitman's wonderful pictures of the American Civil War, and is followed by a chorus from "Prometheus Unbound" and Dr. Henry Head's dignified and pathetic message to those who in the recent war were found too old to fight. Here also is Mr. Siegfried Sassoon's mordant estimate of a certain sort of blatancy, that was neither so useless to the Allied cause or so wholly hoggish in its origins as he thinks, but which certainly gave a chance of expression to very unworthy sides of character and conduct.

Anthologies remind us of the time-saving, trouble-saving doctrines of modern life, from which now apparently even the reading of poetry may not be excluded; but they lead to a wider appreciation of the English-speaking poets and as such are heartily welcome. The class of readers aimed at in this collection will find that an excellent choice has been made for them.

POVERTY AND ITS VICIOUS CIRCLES.

Second and enlarged edition. By JAMIESON B. HURRY, M.A., M.D. London: J. and A. Churchill. 1921. With illustrative diagrams. Pp. 411. 15*s.*

THOSE who are taking up social work will read with interest and profit this second edition of Dr. Hurry's work. As the author says in his preface, "Social reform has received an impetus which shows no signs of slackening and whose effects are reaching to the remotest quarters of the earth."

Part I. of the book deals in 22 chapters with the vicious circles of poverty. Part II. shows how as the effect of these vicious circles poverty becomes a self-perpetuating, a self-aggravating, and a fatal disorder. Part III. deals with the attempt to break the vicious circles by legislation, by the work of voluntary organisations, and by individual effort. In the conclusion (Part IV.) the author discusses the methods which promise most success in the future.

There are interesting accounts of the extension of the franchise, of social legislation, of the Elberfeld system, of the Poor-law, and many other matters. The author has more faith in legislation than in the Poor-law. He gives special praise to the friendly societies and the coöperative movement. We are not sure, however, that coöperators are always model employers. Dr. Hurry says (p. 134) that the diminution in lunacy among females during the war, in spite

of the emotional wave pervading the nation, "was due to the full occupation of, and high wages paid to, all women who could work." This statement is specially interesting in view of the large proportion of domestic servants and of governesses among the older female patients in county asylums, both being occupations formerly badly paid and allowing of small emotional outlet. Trade-unions come in for some criticism from Dr. Hurry for the narrowness of their outlook and "a certain lamentable selfishness of purpose." It has certainly been extraordinary how little the keen male trade-unionist has interested himself until quite recently in the organisation of woman's labour. The man who has worked hard for due recognition of the value of his own labour has allowed his wife or daughter to work for "pocket money" wages, and has, as Dr. Hurry points out in Chapter 16, thus helped ultimately to reduce his own wages. We note that in the chapters on defective feeding and wastefulness the author retains the idea that one protein is as good as another and that margarine is equal to butter. We think, in view of recent work on amino-acids and vitamines, such statements should be qualified.

The book is written rather in a philosophical than in a practical spirit. The author has no new remedies to put forward and does not even discuss proposals such as pensions for mothers or State subventions for the relief of poverty of the widow with young children or of the large family of the man earning a labourer's wage. In his conclusion he professes himself an optimist, but perusal of his book left us in no such frame of mind. The devotion of a separate chapter to each circle, while it leads to inevitable repetition, makes it difficult for the reader to formulate from the whole a practical programme of social reform.

STUDIES IN DREAMS.

By MARY ARNOLD-FORSTER. With a Foreword by Dr. MORTON PRINCE. London: George Allen and Unwin, Ltd. 1920. Pp. 186. 8s. 6d.

THE reader who is familiar with the recent literature of dream-study and cognate topics may find himself attracted by this book because of its literary qualities rather than by any new knowledge about dreams which it may provide. For Mrs. Arnold-Forster's style is a welcome change from the kind of writing to which we are accustomed in "scientific" accounts of the nature of dreams; and her sane and dispassionate consideration of the problems presented by her own dream-life is a model which more dogmatic writers might do well to copy. Mrs. Arnold-Forster approaches the subject with the intention of finding out by observation and experiment what can be learnt about the working of the various mental faculties in the dream-state; and she discusses the part played by the will, reason, imagination, and memory. Her own experience of the possibility of controlling her dreams leads her to believe that "the dream mind is far less independent of our will than is supposed, and that, to a degree that is not generally thought possible, the waking mind can, and does, direct the activities of the mind in sleep." The examples adduced in support of this opinion are strongly reminiscent of the influence of suggestion in suggestible or hypnotised subjects, and since we know that in such subjects dreams can be imposed on the dreamer's mind and their course determined by suggestion from without, there is no reason to doubt that self-suggestion may, in some cases, be equally efficacious. In this sense voluntary dreaming and "dream control" may be possible; but this is not to say that the will is active *during* the dream.

Great importance is ascribed to the part played by sensory impressions during sleep, and to their power of arousing memories with hallucinatory vividness. In dreaming, association of ideas is assumed to be free from all inhibitions, and as soon as a thought arises in the mind its sensory imagery takes concrete form and appears as objective reality. The dream is fashioned from such sources entirely, and its structure and course are accounted for by the free play of association and a "heightening of the faculty of imagination." No attempt is made to discover why the flights of imagination take the course they do; they are obviously regarded as the product of "free" fancy. Thus the dream, having no *meaning*, needs no "interpretation." In her dislike of the symbolic interpretations made use of in psycho-analysis the author seems to have forgotten the importance of the method of dream interpretation by "free association," though without investigation by this method the personal significance of any dream is elusive. A striking feature of the author's own dreams is their coherence into connected stories. As Dr. Prince points out in his foreword, "the dream-mind, like all dissociated systems, can be educated into a highly organised intelligence." This appears to have been the case with the dream-mind of the author, and when this happens, the dream-life assumes a very different character from that which it shows in ordinary people.

Interesting accounts of dreams which show some amount of supernormal faculty, and descriptions of experiences in the borderland state between sleep and waking occupy a considerable part of the book. In a future edition more care should be taken in proof-reading. On page 159 Professor McDougall's name appears three times as "McDowell."

PRÉCIS DE MICROBIOLOGIE CLINIQUE.

Par FERNAND BEZANÇON. Paris: Masson et Cie. 1920. Pp. 600. Fr.30.

THIS book is one of an admirable series of volumes, the "Collection de Précis Médicaux," issued by Masson et Cie. The present edition is the third, and maintains the form and scope of the previous ones. There are naturally certain additions and extensions corresponding to the growth of knowledge or to the added importance of certain branches of bacteriology. Thus the methods of bacteriological diagnosis of cerebro-spinal meningitis, of typhoid and paratyphoid, and of dysentery are discussed at length and in detail. The information contained in the book, though stated to be elementary, is abundant enough to supply interesting reading to experts, and is given with the precision common in French authors. The book can be confidently recommended to laboratory workers and to clinicians.

MANUAL FOR HEALTH VISITORS AND INFANT WELFARE WORKERS.

By Several Writers. Edited by Mrs. ENID EVE, late Ministry of Health; formerly Chief Health Visitor and Sanitary Inspector to the Borough of Holborn. London: John Bale, Sons, and Danielsson, Ltd. 1921. Pp. 194. 10s. 6d.

THIS little book is one of a series of modern clinic manuals. Dr. Bostock Hill writes a preface, and we cordially agree with his views as to the desirability of a conjoint appointment of so-called health visitor, school nurse, tuberculosis visitor, and midwife inspector, wherever this is at all possible. From the point of view of the health visitor her work should be varied; from the point of view of the work overlapping should be avoided, and the mother in the home should not be worried by all kinds of different official visitors, but should be visited by one woman who can try to constitute herself the friendly adviser of the family in health matters.

The book, as might be expected from the experience of the editor, who is also the author of many of the chapters, is full of good sound advice to those who are contemplating the adoption of the career of health visitor. Apart from training, the great requisites of a health visitor are tact and good temper. The advice in this book ought to help in the acquisition of tact and in the assumption of the virtue of good temper even by those who have it not. The booklet contains a useful appendix with regard to training institutions and curricula for health visitors, and it is unfortunate that its price may possibly prevent it from coming within the reach of all health visitors. Health authorities might save public money by presenting it where it would be useful and used.

THE LANCET.

LONDON: SATURDAY, MARCH 26, 1921.

Ophthalmia Neonatorum.

OPHTHALMIA neonatorum has been notifiable since April 1st, 1914, and in some recently issued reports of medical officers of health reference has been made to its increased prevalence. Ophthalmic surgeons are agreed that with proper treatment of the eyes at birth the disease can be prevented, and cases of it should become exceedingly rare. There is general agreement that when it has occurred, given adequate and prompt treatment, damage to either eye should be very exceptional, and the loss of an eye almost unknown. In these circumstances the occurrence of a case in any lying-in hospital should be made the subject of careful inquiry. Obstetricians and gynæcologists are not eye specialists, and it follows that every lying-in hospital should have a call on the services not only of a physician interested in pædiatrics, but also of an ophthalmic surgeon, so that the nursing staff, the pupil midwives, and, last but not least, any students attending the practice of the hospital, may have adequate instruction in the methods necessary to prevent the disease. If the first line of defence against ophthalmia is broken, efficient curative methods would thus be applied at the earliest possible moment.

From two-thirds to three-quarters of the births in the country being attended by midwives, the Central Midwives Board should see to it that registered midwives receive the necessary instruction in the use of one of the silver solutions recognised as being effective. Local authorities are empowered to issue these solutions to midwives capable of using them. It should not, however, be hastily assumed that births attended by midwives involve the greatest danger. Recently we heard of a case where it was intended to make all possible provision against unforeseen circumstances. The family medical attendant, a consultant obstetrician, and an experienced monthly nurse were all three engaged beforehand. Attention was concentrated on the mother: the baby lost one of its eyes. The midwife is bound by the rules of the Board to send for medical help whenever there is "inflammation of, or discharge from, the eyes, however slight," and to notify the medical officer of health that she has done so. Thus, when a midwife attends a birth, provision is made for very early notification of ophthalmia neonatorum. The medical attendant does not wash the baby and may fail to notice the first signs of anything wrong with its eyes. When a case of ophthalmia does occur it is not sufficient for the midwife to send for the nearest doctor. Many practitioners make no claim to special knowledge of eye diseases, and one who rarely meets with such cases might not recognise at once that he is confronted with something formidable. Valuable time may be wasted in ineffective treatment with boric lotion, and irretrievable damage may be done before the case comes to the notice of an ophthalmic surgeon. In face of the menace of such a tragedy as a blind child we must not stand on ceremony or take risks. The medical officer of health, who finds that treatment is not being effectively carried out, ought to be able to arrange with the general practitioner to have mother and child removed to hospital at once—the mother in order to prevent weaning and also that her own treatment may be undertaken if the disease is gonorrhœal in origin. In every large centre of population beds should be available for this purpose, whether in a municipal or a voluntarily supported hospital. The stay in hospital is short and the expense slight compared with the importance of the object in view. From one-quarter to one-third of the inmates of institutions for the blind are there on account of inadequately treated ophthalmia neonatorum. We must cut off this supply of human misery at its source.

In the Memorandum of the Ministry of Health dealing with the form of annual report for 1920 it is laid down that "details should be given of each case of ophthalmia notified, showing whether one or both of the eyes suffered permanent injury, and if so, to what extent." Such annual reports hitherto have not given this information, but have simply returned the number of cases notified. Special forms are now issued by the Ministry which are to be filled in for notified cases of encephalitis lethargica, acute poliomyelitis, and cerebro-spinal fever. This is done for the purpose of increasing our knowledge of the diseases mentioned. We suggest that special forms should be issued by the Ministry to be filled in for each case of ophthalmia neonatorum, in order that we may know what damage is done by this disease and to what extent the knowledge of it we actually possess is utilised or ignored. By the adoption of such a plan attention would become focussed; the occurrence of cases of ophthalmia neonatorum would be enormously decreased and the loss of eyesight from this cause would practically disappear.

Protozoal Intestinal Infection at Home.

INVESTIGATIONS on the human intestinal protozoa were undertaken during the war with the object of clearing up the diagnosis in thousands of cases of dysentery and other intestinal disorders. The patients were continually invalided home from the near and far East, and very soon the fact was brought to light that *Entamœba histolytica* and other protozoa were often present in cases which had had no dysentery, nor, indeed, any intestinal malady whatever. It became clear, therefore, that it was only a small percentage of those actually infected with *E. histolytica* which acquired true dysentery. As a few isolated cases of dysentery and liver abscess and one carrier case had been recorded as occurring in individuals who had never left the British Isles, the suspicion was aroused that infection with *E. histolytica* amongst the inhabitants of Britain might not be so rare as was generally supposed. With this idea in mind, and assisted by several trained experts working in different parts of the country, Mr. CLIFFORD DOBELL, on behalf of the War Office Committee on Dysentery, of which he was a member, organised an investigation of the indigenous population. A similar investigation had already been undertaken at the Liverpool School of Tropical Medicine. The present Report,[1] which is not the least interesting

[1] A Report on the Occurrence of Intestinal Protozoa in the Inhabitants of Britain with special reference to *Entamœba histolytica*. By Clifford Dobell, F.R.S. (Protistologist to the Medical Research Council), with contributions by A. H. Campbell, B.Sc., T. Goodey, D.Sc., R. C. McLean, M.A., Muriel M. Nutt, and A. G. Thacker, A.R.C.S. Medical Research Council, Special Report Series, No. 59, 1921. Price 2*s.* net.

of the many valuable publications emanating from the Medical Research Council, contains a critical review by Mr. DOBELL of the records and results of the various investigations just mentioned, together with an account of cases of *E. histolytica* infection previously recorded amongst residents of the British Isles.

The investigations extended over a large class of population, the Liverpool examinations including civilians in Liverpool Royal Infirmary, army recruits, children, asylum patients, and university and school cadets. Other reports deal chiefly with the artisan class of Birmingham, Brighton, Leeds, Sheffield, Bristol, and Reading. As a result of these examinations it was found that the following protozoa were present, the figures representing the incidence percentage amongst over 3000 individuals examined: *E. histolytica* (7–10), *E. coli* (35–54), *E. nana* (9–13), *Iodamœba bütschlii* (0·5–0·75), *Giardia intestinalis* (18–27), *Chilomastix mesnili* (6–9). It was thus demonstrated that the working-class population examined was infected with *E. histolytica* to the extent of 7–10 per cent. The earliest age at which an infection with this organism was found was three years, but that it may be expected at an earlier age is demonstrated by the finding of *Giardia intestinalis* in a child of 3 weeks. Sex does not influence the chances of infection to any extent, nor does occupation, with the exception of that of miners, who provided the greatest number of infected individuals. Certain instances of family infection came to light, and one is mentioned in which the father and mother and five of six children were all infected with *E. hystolytica*. It thus appears that practically all the common intestinal protozoa of man occur indigenously in all parts of Britain, and, as the writer remarks, it is no longer necessary to seek a foreign origin for every case of protozoal infection found in this country. Attention is also drawn to observations which indicate a similar state of affairs in France, Holland, and Germany.

All evidence goes to show that these infections are not a result of the war, and there is every reason to suppose that they have existed amongst the population for hundreds of years. The figures indicate the frequency with which inhabitants of our islands consume food and drink which has been exposed to gross contamination with fresh human fæces. The fact that so large a percentage of the population is infected with *E. histolytica* does not mean, however, that many cases of amœbic dysentery will occur. Compared with the number infected those who acquired the disease are actually very few, and the more frequent occurrence of amœbic dysentery in tropical countries is accounted for by the much higher incidence of infection. The presence of *E. histolytica* in the population of Britain need not be regarded with alarm. Nevertheless, in the future as in the past, this protozoa may be expected to cause some cases of dysentery and liver abscess, and because of the serious nature of these diseases its presence should be recognised by medical practitioners and the possibility of its occurrence in certain cases duly considered. Protozoal infections of the human intestine can no longer be regarded as peculiar to the tropics. They are generally more frequent there, because it is in those regions that sanitation is relatively defective. That they occur to the extent they do in Britain is perhaps surprising; anyhow, it is a fact well worth the attention of sanitarians. May not the incidence of protozoal infections be an index of the efficiency of sanitary systems and personal hygiene amongst any given population? The facts brought out so clearly in this most interesting Report deserve attention commensurate with their far-reaching importance.

Approved Societies and Voluntary Hospitals.

DURING the debates at the end of last year, by a Standing Committee of the House of Commons, upon the Ministry of Health (Miscellaneous Provisions) Bill—a measure which was afterwards rejected by the House of Lords—the most important discussion from the medical point of view centred round Clause 11 of the Bill, which sought "to give power to county councils to supply and maintain hospitals, to contribute to any voluntary hospitals within their area, to undertake maintenance of Poor-law hospitals and institutions, and to establish and maintain or contribute towards the ambulance service." In view of representations that this clause, by setting State organisation at rivalry with charity, would prejudice the voluntary system of hospital support at a critical time, and just when there was a strong feeling that the country did not enjoy to the full the benefits that might be obtained under that system, Dr. ADDISON stated that he would forthwith appoint a committee "to inquire into and report upon the financial position of the voluntary hospitals throughout the country." This was a wise move, for until accurate information was made public from authoritative sources the most widely differing estimates as to the poverty of the voluntary hospitals had to be dealt with as serious, even though, if some of the statements were true, others must be false.

The Committee appointed by Dr. ADDISON consisted, as he promised it should, of five Members only, none of them being medical men or connected with hospital arrangements in any way, and from this small and impartial body, over which Lord CAVE presided, expeditious advice has now come in the form of an Interim Report.[1] The document, which is unanimous, commences by acknowledging that from evidence received the conviction has been reached that it is desirable in the public interest to maintain the voluntary system of hospital management, and we are glad to welcome a pronouncement which we anticipated. The Committee find that the present situation of financial depression has been mainly due to the large increase, during and since the war, of salaries and wages, and in the cost of provisions and materials; and they hope later to make recommendations as to the practical methods of remedy. But in the meantime an Interim Report is issued because a pressing matter, whose consideration is within the terms of reference, has just presented itself. The quinquennial valuation of Approved Societies under the National Health Insurance Acts shows a considerable surplus over the amounts required for the purposes of the Acts. "Excluding Ireland," says the Report, "the valuation of 4926 societies and branches containing 2,558,123 members (out of a total of approximately 10,000 societies and branches containing nearly 15,000,000 members) which had been completed on Dec. 24th last, showed a total disposable surplus as at Dec. 31st, 1918, of £2,171,576, and it is anticipated

[1] Ministry of Health, Voluntary Hospitals Committee: Interim Report. London: H.M. Stationery Office. (Cmd. 1206.) 1*d*. net.

that when the valuation is completed the total disposable surplus of all the Approved Societies will not be less than £7,000,000. This result is attributed to a material extent to conditions arising out of the war, such as the reduction owing to war conditions of sickness, disablement, and maternity claims, and the release of reserves in respect of members killed on active service." Now under the provisions of the Acts the Approved Societies may, during the next five years and with the approval of the Ministry of Health, utilise any surplus at their disposal in providing additional sick benefits, while the payment of the whole or any part of the cost of the maintenance and treatment of members in a hospital or convalescent home is specifically mentioned in the list of additional benefits authorised by the Acts. The strong opinion of the Voluntary Hospitals Committee is that, in the interest both of the hospitals and of the Approved Societies, a substantial part of the disposable surplus should be applied towards the cost of the maintenance of members of the Societies while they are in hospital. We believe that the larger of the Approved Societies will find themselves in full accord with the suggestion of the Voluntary Hospitals Committee. Those who desire to maintain the voluntary system—even its most ardent supporters—have never disguised from themselves that that system requires much strengthening. How could any other view be held having regard to the statements of their pecuniary plight which continue to emanate from all parts of the country and from some of the best-known institutions? But it has been clear for a long time that the country does not reap to the full the benefits that might accrue under the voluntary system, because of the ineffective procedure which characterises much of the administration. Subscriptions are not collected in any systematic manner from large classes who are quite able to assist. The three outstanding sources for an increased hospital revenue under the voluntary system have been seen to be, first, large business firms whose employees receive benefits in many cases out of all proportion to any donations or subscriptions made by the firm; secondly, the patients themselves, a very large proportion of whom are able to pay something towards their maintenance, although unable to meet the great cost of long illnesses, operative interference, or special treatment in their own homes; and thirdly, the Approved Societies, to whose members the work of the voluntary hospitals is of very great value. The Interim Report states that of the patients treated at the hospitals "a considerable portion, about 30 per cent. of the out-patients, and a larger percentage of the in-patients, are insured persons, and the effect of hospital treatment is not only to relieve these patients from suffering, but also to reduce the period during which they are a charge upon the Insurance funds." If the war, while depleting hospital funds, has had the effect of greatly increasing the surplus available to Approved Societies a special reason is provided for the consideration by the Societies of the claims of the hospitals.

The Report concludes by recommending succinctly to the Ministry of Health that the matter should be brought to the notice of the Societies concerned, who should be advised as to the amount of the contributions which could reasonably be made out of their available surplus. The urgency of the situation, which has led to the issue of an interim document, is due to the occupation at the present time by the Societies in framing schemes for the future. Obviously, it would have been more convenient to include in a general report the consideration of the responsibilities of the Approved Societies towards the hospitals, when the relation of these circumstances to the whole complex problem would have been apparent. But, in the circumstances, it became necessary for the Committee to call the attention of the Ministry to the inadvisability of approving of any scheme for the disposal of the Societies' surplus until their recommendations on the subject had received consideration.

A DEFENCE OF THE MEDICINE-MAN.

Dr. MARETT, reader in social anthropology at the University of Oxford, is one of the latest apologists of medical ethics, as they were understood by our remotest ancestors. In a chapter on The Primitive Medicine-man in his "Psychology and Folk-lore," published in 1919, he takes up the cudgels for a class which has pretty generally been regarded hitherto as composed almost entirely of quacks and deliberate swindlers. According to him the medicine-man of antiquity, as well as his tribal representative to-day, was, and is, no humbug. The Australian aboriginal practitioner believes as firmly as his patient that disease, especially if it be sudden in its onset and obscure in its origin, has been caused by the introduction into his patient's head of some foreign body—usually a piece of crystal—and this he proceeds to extract symbolically. After uttering the proper prayers or incantations he apparently brings a piece of crystal out of the cranium of the sufferer, but—and this is the point to remember—he does not seek to hoodwink anyone by what appears to be a sleight-of-hand trick. His patient and his patient's friends are not for a moment deceived by him. They know as well as he that he has been holding the piece of crystal in his hand—or up his sleeve, if he wears one—and that he has only acted ritualistically throughout. The crystal is a symbol of the mischief within the head, which may in its turn for the matter of that be only referred to as a crystal *pro formâ*. What the medicine-man really does is to set the good magic influence or "nama" within himself to combat the bad "nama" afflicting his patient. He, in fact, deals in the occult, but he does so with high moral intent, and has attained to the power of so dealing only after severe training, involving fasting, isolation, and all the other miseries of a special initiation.

Dr. MARETT's contention is engaging and it makes for the honour of the profession that at present represents the tribal medicine-man, the tribal king, priest, and bard, for there was an early period in human history when all these offices or functions were perhaps often combined in one person. Whether, however, his theory can be said to hold true in all cases is another question. Probably there were good medicine-men and bad, from the latter the charlatans being descended. Something very like "nama" still lingers in the prescriptions of illicit practitioners, and many primitive people in every class all the world over are attracted by the occult element in a patent pill. Dr. MARETT recognises the fact that among primitives malpractitioners were not unknown, but he is careful to show that the good medicine-man, who views his craft in the light of a religion, is always anxious to drive out mere magicians and necromancers from the circle of the profession. Practice involves high moral standards and an ascetic outlook on life. It was an Australian aboriginal who told Dr. HOWITT that he had taken to drink, and that as a consequence the virtue had gone out of him. We trust that he was quite sincere in his professions, since a sceptic might argue that the savage is always anxious to stand well with those strange white men of the missionary type, with their new-fangled views about temperance and continence, and their undoubted supplies of beads, blankets, and other good things.

Annotations.

"Ne quid nimis."

UNIVERSITY GRANTS.

THE Universities Grants Committee have just issued their report, which they describe as a preliminary survey of some of the outstanding difficulties of finance and organisation which confront the universities at the present time. The Committee consist of Sir William M'Cormick (Chairman), Dr. W. Bateson, Sir Dugald Clerk, Sir J. J. Dobbie, Miss S. M. Fry, Sir F. G. Kenyon, Sir Stanley Leathes, Sir Wilmot Herringham (who was appointed in place of the late Sir William Osler), and Sir J. J. Thomson. The report opens with an expression of the Committee's sense of the efficiency maintained in the universities and colleges generally in the face of serious difficulties; the members were convinced at an early stage in their investigations that the present resources of the universities are inadequate. Since the armistice the Treasury grants as a whole have been increased by 83 per cent., and support has been obtained through increased tuition fees, and, in some instances, assistance from local education authorities; but all expenditure has increased enormously, and even if pre-war incomes had been doubled it is doubtful whether the universities would be as well off as they were before the war. The Committee are satisfied that the efficiency of university education will be seriously endangered unless further substantial improvement is made in the salaries of teaching staffs. It was clear from evidence received that some members of university staffs were living in circumstances quite incompatible with continued efficiency; material re-adjustments of salaries were long overdue in 1914, and present economic conditions emphasise the urgency of the question. The Committee doubt whether universal flat rates and automatic increments are possible or desirable, but they consider that it would be an advantage if all grant-aided institutions could agree upon basic minimum salaries within grades and faculties. Hardly less important is the provision of a suitable system of superannuation, with maintenance of the autonomy of the universities, and facility for free transference of teachers into other professions. The insufficient numbers of teachers are also causing anxiety to university authorities; members of the staffs are, as a rule, not only underpaid but also overworked, and sufficient leisure to pursue research is as essential as adequate remuneration. With reference to tenure of appointments the Committee are of opinion that greater fixity is in many cases desirable; and as regards status, lecturers below the rank of professor should be given an effective voice in internal administration and the regulation of study and discipline. Passing on to the subjects of equipment and accommodation, the Committee refer to the necessity of adequate provision for increase and upkeep of university libraries, and to the wider recognition of the importance of the librarian's position. The needs of the Faculty of Arts are mainly for personnel; the Faculty of Pure Science requires, in addition, accommodation and material equipment, particularly in view of the large numbers of ex-Service students who have recently entered the latter department of study.

Turning to applied science, the Committee take the Faculty of Medicine as the best example of the theoretical and practical in combination, as the requisite thorough grounding in the basic sciences of physics, chemistry, and biology, and in the intermediate anatomy and physiology, illustrate the essential condition of a university education in any applied subject. The Committee are of opinion that no education can be called liberal which leaves a student at 18 ignorant of the fundamental laws of nature; but there are too few secondary schools in which these subjects are at present properly taught to permit the universities to dispense with elementary instruction in them. Within the past 25 years the teaching of students of medicine has been very widely extended, and is now passing into the hands of teachers devoting their entire time to the work, each subject of which requires much space and great expense for laboratory purposes. It has not in England been considered a necessary qualification for teaching medicine that a man should have practised laboratory methods of advancing the science; the Royal Commission of University Education in London, reporting in 1913, recommended the setting up of a system which would provide teachers and assistant staffs willing to devote themselves to scientific investigation. This system is now in operation by means of the clinical units established, with the assistance of grant aid from the Treasury, at the medical schools of four London hospitals, and the Committee state that everywhere throughout England and Scotland the principle has been seized upon and the need realised; they have issued a statement for the guidance of university bodies contemplating the establishment of new arrangements to this end.

In considering general needs, the Committee recommend throughout the provision of grant aid in the form of block grants. Reference is made in the report to the serious shortage of residential accommodation for students in most of the great cities, and to the wide extension of extra-mural work. In consultation with the authorities of universities and colleges the Committee have drawn up for annual presentation to Parliament schedules displaying the essential items of income and expenditure, together with statistics of students. They express the opinion that it is not perhaps an impossible ideal to look forward to a general scheme whereby the areas served by different universities should be defined, and all rating authorities should contribute to their local university the proceeds of a penny rate. In conclusion, the Committee emphasise the possibility of local support in future grant allocations, and urge upon university authorities the importance of regarding their endowment funds as their central source of revenue.

ACUTE PERITONITIS SIMULATING ENTERITIS.

CONSTIPATION is the rule in acute peritonitis and in the cases in which diarrhœa occurs the peritoneal symptoms—abdominal pain and tenderness and repeated vomiting—generally render the diagnosis clear. At a meeting of the Société Médicale des Hôpitaux of Paris, MM. A. Bergé and J. Roberti reported a case in which the diarrhœa was so prominent a symptom and the signs of peritonitis so slight that the diagnosis from acute enteritis remained doubtful for a long time and prevented operation at the most favourable time. A dressmaker, aged 21 years, was admitted into hospital on July 23rd, 1920. The history was that after dancing all night on the 17th and taking six or seven ices she had slight rigors on the evening of the 18th. However, she was able to work on the 19th. That night she was attacked with diarrhœa and pain in the abdomen, which from the first was generalised. On the morning of the 20th she vomited her coffee. The diarrhœa, accompanied by colic, continued. Fifteen to 20 greenish glairy stools were passed daily. For five months she had suffered from leucorrhœa. Menstruation was very irregular. On examination she was prostrate, and the eyes were sunken. More than 10 greenish glairy fœtid stools had been passed in 12 hours and one contained a little blood. There was no nausea. In the hospital she vomited three-quarters of a litre of greenish fluid; this was the second time she vomited in four days. The abdomen was a little distended, tender all over, and especially in the left iliac fossa. But the tenderness was neither exquisite nor superficial; strong pressure was necessary to provoke it. There was no cutaneous hyperæsthesia and no pain on sudden depression of the abdominal wall. The patient could sit up without pain. The tongue was moist, the temperature 102·8° F., the pulse 116 and good, and the respiration 35. There was oliguria and no albuminuria. Attempts at inducing abortion were denied. Menstruation last took place at the end of June. Vaginal examination showed the cervix a little

soft, but the body of the uterus was normal. On the two following days there was considerable improvement, and on the 25th the abdomen was less distended and less tender and more supple, and only a single stool was passed in 17 hours; but on the 26th her condition was distinctly worse, the features were pinched, the pulse 150 and thready, and the dyspnœa had increased. The abdomen was a little distended, tense, and a little painful. She vomited once and passed one glairy stool. A surgeon was called in and performed exploratory laparotomy. There were tracks of pus, but no collection, all over the abdomen. The maximum amount of pus and membrane was in the pelvis around the left tube. Salpingitis was considered the source of the trouble and total hysterectomy was performed. Death occurred three hours after operation. The uterus was found normal, the tubes a little enlarged, but without any gross lesions. At the necropsy the intestines were found injected and covered at numerous points with fibrino-purulent membrane. The whole intestine was filled with greenish-grey mucous liquid. It was then ascertained that on the 15th the patient had visited a professional abortionist, but what had been done was not known. Evidently the peritonitis was of genital origin and due to manœuvres to induce abortion. The intensity of the diarrhœa and the slightness of the symptoms of peritonitis suggested enteritis. Slight or moderate diarrhœa is recognised in pneumococcic and certain septic forms of peritonitis with profound intoxication, particularly streptococcic peritonitis. This diarrhœa is serous or glairy and often fœtid. But in these cases the ordinary signs of peritonitis—vomitings, abdominal pain and hyperæsthesia, very rapid, feeble pulse, and hiccough—render the diagnosis clear.

T.N.T. IN THE ANIMAL BODY.

T.N.T. poisoning has fortunately lost most of its immediate practical interest,[1] but the study of its remote effects on the body yielded results of sufficient interest to warrant a full inquiry. The outcome of this inquiry is now before us in a special report,[2] containing the most recent observations. Approach has been made from the point of view of the clinical features, toxicology, and biochemical evidence. The net result tends to show that the workers in these separate fields of investigation come to similar conclusions as regards certain aspects of the condition. The outbreak of toxic jaundice amongst workers in munition factories revealed the fact that the trinitrotoluene itself was the causative factor, and this was all the more surprising since up to this time it had been regarded as a more or less harmless substance. Naturally impurities in the trinitrotoluene were at first looked upon as the cause, but these have been proved to play no part in the production of toxic jaundice. The knowledge gained as a result of this scientific inquiry is of undoubted value, and opens up a field of investigation into the effects on the liver of closely allied substances. Trinitrotoluene is prepared by nitrating toluol, a compound produced from the distillation of coal-tar. It is possible that a number of closely related chemical compounds derived from the same source may exert a similar action on the liver. Their use in medicine is being extended daily, and we want to know their exact action on the body, particularly on the liver, and whether this action is similar to that produced by T.N.T. It is in this respect that the present report offers such valuable information and suggestions, and therefore merits careful attention.

Dr. W. J. O'Donovan contributes a long memorandum on the subject, and deals with the historical, technical, administrative, and clinical aspects of the problem.

His paper affords an excellent illustration of the value of combined work in approaching such a problem. The paragraph on the technical side is of interest, particularly as illustrations are given of the method of filling shells with T.N.T. Amongst the clinical features observed were toxic gastritis, toxic jaundice, dermatitis, and anæmia, the latter in the more severe forms being of the aplastic type. The workers who suffered from dermatitis, as a general rule, did not develop toxic jaundice or anæmia, and in this condition susceptibility undoubtedly played a very large part in its production. In the latter months of the war T.N.T. in the form of a fine yellow powder was mixed with ammonium nitrate (80 per cent.), making the resulting mixture (amatol) much more hygroscopic, and it was with the use of this mixture that the skin lesions predominated. It appears therefore that this mixture was absorbed by the skin, and its moist nature would naturally act as an additional aid to its absorption.

The occurrence of toxic gastritis is of interest, especially as it was observed so frequently in munition factories, and was of outstanding importance. The symptoms were pain (colicky in character), nausea, vomiting, constipation, and cyanosis of lips and tongue. These were the typical symptoms of poisoning by coal-tar derivatives, and convalescence appears in many cases to have been prolonged. It is more than probable that such cases may have received considerable damage to the liver, besides the gastric mucous membrane, and yet insufficient to produce actual jaundice. That coal-tar derivatives do actually induce necrosis in the liver is well known, and this may be in the form of circumscribed patches and so escape detection. The damage is still there and may show itself after a lapse of time, which may be months or years. A case was reported recently where a patient had received salvarsan treatment, and was operated upon subsequently for condylomata. The patient died after the anæsthetic, and post mortem a number of atrophied necrotic patches were found in the liver. Apart from slight jaundice following the salvarsan treatment there was no evidence of any permanent liver damage. The importance of the toxic gastritis cannot be too strongly emphasised, and any cases known to have suffered from this form should be followed up and observed. The production of cirrhosis of the liver and pernicious anæmia may receive a possible explanation on similar lines to the remote effects of T.N.T. poisoning. This latency in the production of toxic effects was a characteristic feature of toxic jaundice, around which, of course, most of the interest connected with T.N.T. poisoning lies. This is well illustrated in the case published by Professor E. Glynn, of Liverpool, the latency being nine months, and a post-mortem examination yielded evidence of extensive focal necrosis affecting about a third of each liver lobule. This toxic jaundice appears to have developed insidiously and with very slight symptoms. The earlier the cases were removed from the factory the better was the prognosis, but there was no constancy between the severity of the symptoms and the ultimate outcome of the case. All the evidence given points to the fact that the T.N.T. was capable of producing necrosis in the liver without producing any grave symptoms, hence the difficulties that arose in diagnosis. There was no simple test that could be applied to determine the extent of liver damage in any given case. A noteworthy feature was the absence of Webster's reaction in the urine of patients with toxic jaundice, which will be referred to later. The exact factor or factors which determined the onset of toxic jaundice are at present unknown, but the possibility of an intercurrent infection or lowered resistance is discussed by Dr. O'Donovan.

Dr. G. A. Wyon reports his results obtained on animals who received large doses of T.N.T.

With such doses hepatic degeneration was produced in cats, rabbits, rats, and monkeys. Chronic poisoning with small doses of T.N.T., however, did not produce any such effect. The comparison is made with poisoning by alcohol, chloroform, and tetrachlorethane, and Dr. Wyon concludes that there is a second unknown factor which probably coöperates with T.N.T. in producing fatal poisoning in man. The animal experiments, however, did not throw much light on the poisoning effects as observed in man, and illustrates one of the great difficulties encountered in this research.

Mr. T. A. Webster contributes an interesting account of his work on the metabolism and excretion of trinitrotoluene.

The question of how to detect small quantities of T.N.T. in the urine of workers exposed to this compound was satisfactorily settled by Webster, and the discovery of the test is due to his labours. The modification of the test whereby a beautiful blue colour is obtained was independently discovered by F. Tutin and described in THE LANCET, 1918, ii., 554. The chromogenic body—viz., azoxy-di-nitrotoluene—is excreted in the urine, and is responsible for the Webster test, and presumably formed in the kidney. It is here conjugated with glycuronic acid and excreted in the urine. Attempts to obtain the chromogenic substance from the blood or organs failed.

Dr. H. H. Dale deals with the fate of T.N.T. in the animal body and the attempts made to trace the changes which T.N.T. undergoes before being excreted as the

[1] Trinitrotoluene Poisoning: Officially Communicated by the Ministry of Munitions. THE LANCET, 1916, ii., 1026.

[2] Medical Research Council. Special Report Series. No. 58. 1921. Price 3s.

chromogenic substance, the only compound so far isolated with certainty from the urine.

The significance of the Webster test is emphasised, especially as a signal of danger of T.N.T. poisoning. The absence of this reaction from the urine may be taken as an ominous sign. The chromogenic substance appears to represent the safest point at which reduction of T.N.T. is arrested. The failure of the body to excrete T.N.T. in this form may therefore provide an indication that more highly reduced forms occur, and with them severe intoxications.

Dr. P. N. Panton deals in his two reports with his experimental work on animals, and the pathological changes induced in man by T.N.T. poisoning.

In the experimental work he collaborated with Dr. Harold E. Bates, and Dr. H. M. Turnbull has added very complete reports upon the histological changes which he found in the experimental animals, and also in man. In only two animals was it possible to induce changes akin to the aplastic anæmia and toxic jaundice as met with in man. The aplastic anæmia and the toxic jaundice were not directly due to hæmolysis by the poisonous action of T.N.T. The extreme reduction of the blood-forming bone-marrow was the chief effect of the poison in the cases of aplastic anæmia. The cell-count was thus that of a rapid progressive primary anæmia with a high colour index. The observations on the macroscopic and microscopic changes in the liver in toxic jaundice due to T.N.T. are of more than passing interest. The question as to whether permanent liver damage occurred in the cases which recovered is also discussed. The evidence so far obtained leads to the view that recovery from minor liver damage is the rule, and is non-progressive. With severe damage to the liver there was, however, evidence of a progressive degeneration with the occurrence of toxic jaundice many months after exposure to T.N.T.

The report is a testimony to the value of scientific coöperation, and if the cases of T.N.T. poisoning are happily no longer existent, there are many conditions which closely resemble it and require investigation. The effects of a number of liver poisons have still to be elucidated, especially salvarsan and its numerous substitutes, and further light may thus be thrown upon the various manifestations of T.N.T. poisoning described in this report.

GUSTAV KILLIAN.

IN the death of Professor Gustav Killian, which occurred last month, rhino-laryngology has sustained the loss of one of its most brilliant workers. Born in Mayence in 1860, he studied at Strasbourg, Heidelberg, and Berlin under Krause, Jurasz, and Fraenkel; in 1900 he became professor of diseases of the nose, ear, and throat in the University of Freiburg-in-Breisgau, and in 1911 succeeded Professor B. Fraenkel in the University of Berlin. Killian was an original worker of extraordinary fertility, and will long be remembered for his association with the most notable advances in the technique of his specialty; especially remarkable is his work on direct examination of the larynx, trachea, and bronchi, on suspension-laryngoscopy, on submucous resection of the nasal septum, and on the "Killian" operation on the frontal sinus. Many English laryngologists will remember his visit to London in May, 1914, when he delivered the Semon lecture and demonstrated his method of suspension-laryngoscopy. Foremost among his pupils are Brünings and v. Eicken. His name will remain a landmark in the history of rhino-laryngology.

THE NON-OPERATIVE TREATMENT OF SURGICAL TUBERCULOSIS.

THE discussion at the Medical Society of London on March 7th served to emphasise what has recently been pointed out by Mr. G. R. Girdlestone and others in our columns—namely, the inadequate provision in this country for dealing with the crippling disabilities of children. Mr. Girdlestone himself found,[1] from an analysis of the case-sheets of more than 12,000 youthful cripples, that in 35·4 per cent. of them the occasion of the crippling disability had been non-pulmonary tuberculosis. At the discussion Sir Anthony Bowlby, speaking for surgeons in general, justly pointed out that it was impossible in these, or indeed in any other cases, to eradicate the tubercle bacillus by operation. If it could be done at all, that was a thing which could only be done by the patient himself. But, on the other hand, much more than passive treatment was needed for this class of case. Mere convalescence in the open air was insufficient, for a child with a tuberculous hip needed appliances and other forms of special treatment. Mr. T. H. Kellock in his contribution regretted that efforts so far had been mainly directed towards building up the constitution in these cases of surgical tubercle, whereas little or nothing had been done to try to treat the disease itself. He also saw the necessity of combining local and constitutional treatments. Mr. W. H. Trethowan showed the difficulties of the orthopædic surgeon called upon to treat tuberculous disease of bones and joints in the busy out-patient department of a big general hospital. Some cases did well even without the benefit of a stay in the country, but often the most modern and efficacious methods of preventing and correcting deformity were in out-patient practice vitiated in results by bad home circumstances. All who are called upon to deal with these cases naturally turn for guidance to the experience of the Treloar Cripples Hospital at Alton or to that of the Rollier Clinic at Leysin; but the suggestion of scattered orthopædic clinics made by the Central Committee for the Care of Cripples should not be forgotten. Every area in this country should be served by a hospital for crippled children.

[1] THE LANCET, Jan. 8th, p. 74.

ANGINA PECTORIS IN DIABETES.

ACCORDING to Dr. Max Kahn,[1] physician to the Beth Israel Hospital, New York, comparatively little attention has been given to the cardio-vascular changes present in diabetes, angina pectoris especially being overlooked. Unless granular changes in the kidney are also present, the diabetic patient usually has a normal or low blood pressure. Attacks of angina pectoris may nevertheless be the chief complaint of a middle-aged diabetic patient. Although the pain may not be excruciating, it may be sufficiently severe to stop whatever work the patient is doing. A remarkable feature of the attacks is that they do not occur when the sugar tolerance is not exceeded. A high blood-sugar with glycosuria will frequently cause recurrence of the attacks. Dr. Kahn suggests that the pathological changes in the myocardium responsible for the angina result from a lowering of the glycogen storage in the fibres of the bundle of His, which are normally richer in glycogen than the ordinary cardiac fibres. Electro-cardiograph tracings of diabetic patients with angina pectoris show an inversion of the T-wave in one or more of the three leads, which, as Willus has recently pointed out, is usually due to some pathological change of the myocardium. Of three cases of diabetes reported by Dr. Kahn two had a low blood pressure and attacks of angina pectoris, while in the third there were high blood pressure and albuminuria, but the patient did not complain of any cardiac oppression.

[1] Journal of the American Medical Association, Feb. 26th, 1921.

THE MANCHESTER RADIUM INSTITUTE.

THE report of the Manchester and District Radium Institute for the year 1920 consists for the most part of abstracts of two papers read before the Royal Society of Medicine last year. The first of these concerns carcinoma of the cervix, the second the treatment of exophthalmic goitre; both should be of value to practitioners who missed the opportunity of reading the original communications. Of original work Dr. G. E. Loveday furnishes a report on the blood of radium workers based on examinations carried out in the institute during the past 14 months. Two cases are described in detail, one being that of a female worker, who had handled radium for five years. Unfortunately, no indication is afforded as to the precise nature of her work—whether she was engaged in making or fitting emanation apparatus, or in applying it to

patients. Thus no judgment can be formed as to the amount of gamma radiation received, a fact upon which other investigators lay particular stress, as the blood changes are believed to be the expression of the cumulative action of small doses of gamma rays. The same criticism applies to the case of the male worker. Both cases showed leucopenia; in the case of the female worker it was extreme, but the leucocyte count resumed its normal level nine months later after a period of rest. A summary of work done at the institute shows that 834 fresh cases were seen during the year, 552 of them being malignant, and of these, 65 cases (exclusive of rodent ulcer) are stated to have been "free from signs and symptoms of disease at the end of the year." Such results are encouraging, although they should be read along with Dr. Arthur Burrows's statement that "nearly half the cases reported well at the end of the year in my annual reports recurred subsequently," and it is probable that with the passage of time other cases may show signs of recrudescence. Interesting suggestions are made with reference to prophylactic irradiation, and the question is raised whether this procedure should be adopted some time before, at, or some little time after the operation. A positive pronouncement on this point would be welcome. Dr. Burrows discusses the possibility of modifying the screens now in general use, and refers to Janeway's method of burying unscreened tubes in tumours as an indication of the fact that heavy screening is by no means essential in treatment. He states that brass and silver are, on the whole, the best methods to be employed. This endorses the experience of many other workers, who agree that silver is the most generally useful screen. A photograph is given of the new Radium Institute, to which it is hoped to transfer the work early in the present year.

SYPHILIS OF THE PANCREAS.

Dr. Udo J. Wile,[1] professor of dermatology and syphilology of the University of Michigan, remarks that in spite of Neumann's statement in 1899 that the diagnosis is never made during life or at least without operation, a number of cases are on record in which undoubted syphilis of the pancreas was diagnosed intra vitam. Although most authorities hold that the condition is exceedingly uncommon, Sallis, who collected 15 cases in 1913, asserts that the condition is not so rare, and states that syphilitic lesions of the pancreas occurred 45 times in 100 cases of abdominal syphilis. Warthin also holds that chronic interstitial pancreatitis is one of the most frequent visceral lesions found at necropsies in cases of latent visceral syphilis. Syphilis of the pancreas may occur in a sclerous and a gummatous form; a combination of the two forms is also found. The symptoms of syphilitic pancreatitis differ but slightly from those of any other pancreatic disease, and the pancreas is so seldom affected alone that the symptoms are frequently masked by those of involvement of the other viscera. The few points suggestive of syphilis when the pancreas is the seat of disease are jaundice without other cause, glycosuria, and tumour of the pancreas without cachexia. The diagnosis is extremely difficult. Except for the predominance of glycosuria, which occurs in about 50 per cent. of the cases, and the relatively mild cachexia in association with a large palpable tumour, there are no definite criteria, according to Dr. Wile, to differentiate syphilis of the pancreas from cholelithiasis and from other forms of pancreatic disease, such as carcinoma or chronic interstitial pancreatitis. The association of hepatic disease, however, is strongly in favour of syphilis, and the therapeutic test is in most cases the most valuable guide. Although Neumann regards the prognosis as unfavourable, inasmuch as most of the cases are recognised only at autopsy, Dr. Wile has collected 10 cases in which complete recovery was reported as the result of administration either of salvarsan, mercury, or iodide, or of mercury and iodide combined.

[1] Archives of Dermatology and Syphilology, February 1921.

"IDIOPATHIC" DILATATION OF THE URINARY BLADDER.

IN a recent issue of THE LANCET (March 12th, p. 534) Dr. S. R. Tattersall recorded an example of those curious cases of dilatation of the urinary passages without any discoverable mechanical or organic obstruction to the exit of urine. The instance is that of a youth, 18 years of age, who died with renal fibrosis, and in whom the bladder was distended and hypertrophied, notwithstanding the fact that micturition was unimpeded and that a rubber catheter could be passed without difficulty; the urine, which was acid, contained no blood or pus. A similar phenomenon, mutatis mutandis, is encountered elsewhere, and is, perhaps, best known in the œsophagus under the names of idiopathic dilatation, œsophagectasia, and achalasia. Now that the diagnosis of this form of œsophageal dilatation has been rendered easy by skiagraphy (after the administration of bismuth mucilage), the number of such has augmented, the increase being, of course, apparent only, and due to the development of more accurate methods of diagnosis. In the large intestine a like end-result has been long known, once as "idiopathic" and at present as "megacolon," the change in nomenclature having added, however, no further light as to its causation. These various dilatations are "idiopathic" in the meaning that they stand apart in their kind, and do not admit of explanation by any of the commoner obstructions which lead to similar distension. That they are neuromuscular in their essential nature, however, may be assumed without much hazard, using this term in a broad sense; for under such, more than one conception in detail is possible. The hypothesis that the dilatation arises from a fault in coördination between the propelling musculature and the relaxation or active dilatation of a corresponding sphincter, is that at present in favour. The name achalasia (failure to open) was devised in order to exclude sphincteric closures due to hypertonic contraction or spasm. The latter process may be excluded by the fact that no hypertrophy of the sphincters is found, even after the lapse of many years, during which the dilatation of the structure behind has been proceeding. The existence of a sluggish reflex is another possible element in the neuromuscular fault, the origin of the normal reflex being the distension of the viscus, which latter may not be incited to discharge its contents until the internal pressure reaches a degree which in health would be excessive. The existence, lastly, of a primary ganglio-neuritis of the intraparietal nerves of the viscus concerned is a further supposition of which the truth can be proved only by rigid histological demonstration.

Dr. Norman Walker, of Edinburgh, has been appointed Chairman of the Scottish Board of Health Consultative Council on Medical and Allied Services in succession to Principal Sir Donald MacAlister, K.C.B.; and Dr. John Yule Mackay, Principal of University College, Dundee, has been appointed Vice-chairman in succession to Dr. Walker. While relinquishing the chairmanship of the Council, Sir Donald MacAlister will continue to give his services as a Member of the Council.

THE LANGHAM TELEPHONE EXCHANGE: MEDICAL MEN'S NEW NUMBERS.

WE have received notice of the following additional transferences from the Mayfair to the Langham Exchange:—

Mayfair.	Subscriber.	Langham.	Mayfair.	Subscriber.	Langham.
4054	Carlill, Hildred	2338	1118	Matthews, John	1118
7021	Mayou, M. S.	1298	5387	Daly, Ashley	1607
1993	Saunders, Arthur	1993	4861	Steele-Perkins, G.	1745

The speedy appearance of the new Telephone Directory will, we hope, make further announcements unnecessary.

A POLAR EXPEDITION.

BY A. H. MACKLIN, O.B.E., *M.C.*, M.D. VICT.,
LATE SURGEON TO THE IMPERIAL TRANS-ANTARCTIC EXPEDITION.

IN view of the recent announcement by Sir Ernest Shackleton of a new expedition to the Arctic some of its medical aspects and some account of the surgeon's work may be of interest.

Purely medical work forms a very small share of the total duties of the surgeon. All members of an expedition must take part in routine duties; they must be prepared to help in the work of the ship, wash down decks, take a trick at the wheel, even to take a turn as "Peggy," assisting in the galley and washing dishes. Later their duties may include temporarily those of sledge-pullers.

Once the general duties have been carried out, each man must be prepared to attend entirely to his own wants, and must keep in repair all his personal gear. In addition he has his own special work to perform: the zoologist and botanist make and supervise the collection of animals and plants, the geologist makes his study of ice and land formations, and so forth. As each member of the expedition has to be physically fit, and is selected partly for his qualities of wind and limb, the duties of the surgeon in the ordinary way are light. His opinion, however, is sought on diverse unexpected matters, such as the health of the sledge-dogs and the quality of the meat of seals, penguins, and sea-birds generally.

The Welfare of the Dogs.

Veterinary work is of the highest importance to the expedition, for the dogs form the traction power of the sledges, and the loss of any one of them is serious. Their chief disabilities result from fighting. Many of these dogs seen in the ordinary way and with stomachs well filled with a mixed dietary, are tractable and peaceable, but when at work, or on a definite ration, often of freshly killed meat, they are fierce to a degree, and though submissive to their drivers (a point of policy) fight amongst each other so furiously that serious injury and disability result unless they are separated at the onset. Injuries from this cause cannot be absolutely eliminated, though it is a point of interest that dogs which have worked together in a team for some time rarely fight. When two strange teams meet, however, there often ensues a battle royal, in which every dog of each team participates. In dealing with wounds and external injuries of the dogs it is necessary so to dispose the animal that it cannot interfere with the repair process, and to secure this considerable ingenuity is often called for on the part of the surgeon. My own experience in the Antarctic has shown that wounds in dogs heal readily and well, and that good results can be obtained from fractures, even those of such bones as the humerus, which is not by any means so "getatable" for treatment as the human humerus.

The chief sources of sickness amongst sledge-dogs are undoubtedly parasites. External parasites are easily dealt with by isolation and washing with fairly strong antiseptics—e.g., carbolic soap and lysol, and keeping the coats well combed and brushed. Intestinal parasites are also fairly easily dealt with, the most difficult to get rid of completely being the ordinary tapeworm. In dogs a much more drastic method can be adopted than with human subjects. When the condition has been diagnosed the animal's food is stopped and a powerful purgative is given. This in itself will often cause the passage of a large number of parasites, sometimes even the complete tapeworm. For this purpose castor oil is the most effective purge, but must be given in large doses (about 2 oz. for a dog weighing 90 lb., and more for the heavier dogs). After the bowels have been completely evacuated the vermicide is given and is followed in about 24 hours by another purgative. All food is withheld during this time, though the animal is allowed to drink or to eat snow. On the fourth day food is again given. I have never seen any ill result from the combination of filix mas and castor oil. It is astonishing what a number of the various nematodes and cestodes an animal can carry in its intestines without marked external signs. Another parasite which I encountered in ten dogs during the last Antarctic expedition is more difficult to deal with. The animals attacked lost weight and hair, the mucous membranes were pale, and a curious hump of the spinal column exhibited itself; the animal was restless, barked at nothing, and scratched itself frequently. Post-mortem examination revealed the presence of a large, round, reddish-pink worm with a dark lateral line, 2½–3 ft. in length, known from its appearance to the sailors as "the big red snake." Sometimes two smaller worms were found. All but one were found in the abdominal cavity, the most usual site being under the right lobe of the liver or in the right epigastric fossa. In every case the worm was shut off by a thin-walled prison caused by fibrinous adhesions of the omentum. On first opening the abdomen (the incision was always made before the carcass had become cold) the worm seemed to be feebly motile. This motility lasted for a few moments only; as the examinations were always made in low temperatures, this was probably due to the inrush into the abdomen of cold air. In one other case the worm, a large one, was coiled in the pelvis of the left kidney, the cortex of which was contracted and hard. The right kidney was hypertrophied. The preserved specimens of the organs and the blood films were lost owing to the sinking of the *Endurance*. From inquiries and references made since my return I gather that the parasite was the *Strongylus gigas*.

Parasites Affecting Food-supply.

The surgeon is usually called upon to decide as to whether various portions of the animals killed for food are fit to eat. I found in the Antarctic that all of them, the seal tribe, sea-leopards, sea-elephants, &c., penguins, and the various sea-birds, suffered largely from parasites. In most cases these were confined to the alimentary tract, but in some cases I found cysts on the heart wall (*Cysticercus cellulosæ*), and some small bodies, stated by the biologist to be trematodes, free in the bile-passages in large numbers. Often in the latter case the left lobe of the liver was white and shrunken, a faint, sharp line differentiating the unhealthy from the healthy part. In these cases also, the lymphatic glands throughout the whole body were enlarged, and the capsule separated off by a thin layer of serous fluid. The spleen was often so much enlarged that it more than half filled the abdomen and was soft and flaccid.

[As in the case of the dogs, all pathological specimens and notes made at the time were lost with the ship.]

Antarctic animals depend largely upon fish for their food-supply, the other source consisting of what is commonly spoken of as "whale food," small creatures known as euphausia and a species of amphipod. All the fish obtained in these regions contained intestinal parasites in large numbers, and were probably the source of their occurring in the larger animals. I was interested to notice that the only "land" bird in the Antarctic—namely, the Paddy Bird—lived largely upon the parasites passed in the excreta of penguins. Often where penguins collected in numbers, these Paddies could be seen walking about with quick steps, hastening always to pick up the parasite before it had become frozen in the excreta. The whale forms one exception to the above. This immense animal is notorious for a very small gullet, through which one would have difficulty in passing the hand. Mr. Clark, who examined numerous specimens, found that whales lived entirely on euphausiæ, amphipods, and sometimes on squids. I have regretted that I did not examine their stomachs and intestines to see whether they contained the same parasites as the fish-eating animals.

With regard to the employment of the meat of such animals, I always insisted on the importance of first carefully removing the whole alimentary tract entire, avoiding spilling of the contents, and burying or dumping it well away from the meat. When parasites were confined to the intestines all the meat, and the liver, kidneys, heart, and brains, were used for food.

When there were any signs of disease outside of the alimentary tract I recommended that it should not be used at all, except when food was scarce, when the meat was eaten, but the internal organs thrown away.

Frost-bite.

The purely medical work consisted mainly in dealing with such small accidents as may from time to time occur amongst the party—frost-bites, small localised inflammations, cuts, fractures, extraction of teeth, &c. Frost-bite is a condition which occurs very frequently, but all members of the party quickly learn how to recognise and treat this condition, and the danger of neglect is so well known that a constant watch is kept for its onset. As is common knowledge, the parts most frequently affected are the exposed parts of the face and the extremities—the tips of the ears, the nose, the skin over the cheek bones, the chin, the fingers, and toes. It is the custom for members who are out together, or meet outside, to scrutinise each other's faces, and give warning of any appearance of frost-bite. Some men carry a small looking-glass for this purpose. In the very early stages it is only necessary to cover the part first with one warm hand and then the other, replacing each as it gets cold in the mitts. A little gentle friction may be applied, but not much, for the cuticle over a frost-bitten part of the face is easily rubbed away, leaving an extremely sore and slightly weeping surface. The practice of rubbing the part with snow, recommended in text-books, is utterly useless and extremely unpleasant. Frost-bitten fingers are easily treated by placing the hand inside one's clothing next to the skin. Frost-bite of the feet and toes is a very much more serious matter, and each individual must exercise the greatest care and watchfulness in guarding against its onset. The danger is that the parts may become frost-bitten, while the owner is quite unaware that anything is amiss or whilst he is asleep. Exhaustion adds to the danger, for not only is the local circulation impaired, but the man is not likely to be so watchful for its onset, or so ready to take prompt steps for its treatment. The toes may be unbearably cold and suddenly become comfortable. This is easily recognised if all the toes become suddenly frost-bitten at the same time, but the difficulty is that small portions of different toes are usually affected, and though there is no sensation in these parts, the toes as a whole still feel cold. To the experienced, and those on guard for it, there is, however, a feeling that everything is not quite right, when the only thing to do is to remove all foot-gear and examine the part. Frost-bitten feet may be treated by rubbing with a warm hand, and may be rubbed more vigorously than the face. The parts usually return to normal within a few minutes. If the frost-bite has been present for some time it may be necessary to persist on this treatment for a longer period. Bad cases require that a good Samaritan enclose the foot within his clothing next to the warm skin, or even relays of good (but probably blasphemous) Samaritans. Removal to a warm atmosphere and hot food and drink facilitate recovery, but care must be taken to prevent too rapid a return of the blood flow, causing choking of the capillaries, thrombosis, and a condition more difficult to deal with than the original frost-bite. It is, no doubt, the danger of this that has given rise to the treatment of "rubbing with snow." Certainly it is more justifiable in the case of the feet, and may be a good thing to teach "first-aid" students, whose natural instincts would be to warm the parts at a fire or to plunge them into hot water. Cases which do not come back to normal within a few hours of this treatment will not come back to normal at all; blisters containing straw-coloured serum or even blood may form, and then the question arises whether the slough be superficial and the patient will get off with the loss of some skin, or will death of the whole part, requiring amputation at a later stage, ensue? A case which occurred on the last Antarctic expedition produced typical dry gangrene of the toes, which were black and shrivelled, and separated by a well-marked red line from the healthy foot. Amputation was performed. The party was at that time living under an up-turned boat. During the operation the inmates were all turned out, with the exception of two invalids, one of whom, suffering from frost-bite himself, gravely looked on, wondering whether his turn would come next. It is impossible to over-emphasise the extreme importance of prompt and efficient treatment in dealing with frost-bite of the feet. It is quite a common thing where the parts have not been actually frost-bitten on the return from the cold outer air to a warm room for a sensation of severe "pins-and-needles" to occur while the circulation is returning to normal. There is here also a point of danger, for the too rapidly returning flow of blood into devitalised tissues may lead to exudation into the surrounding tissues, causing constriction of the lumen of the vessels. In a mild degree it often causes an irritable condition resembling chilblains, and is most commonly seen on the tips of the ears. Hence the advisability of not immediately warming the parts, but of letting the process take place gradually.

Advice on Foot-gear.

In dealing with frost-bite of the feet the great essential is, of course, prevention, and this is a point to which Sir Ernest Shackleton has himself given great attention, even to the very lowest detail. Frost-bite is due to the constricting influence of cold on the capillaries, so that eventually the lumen becomes obliterated. The part is entirely denuded of blood, and becomes waxy-white in appearance. The essentials of foot-gear for Polar regions are therefore: (1) to avoid any constriction of the supply of blood to the toes; (2) to have a non-conducting air-space between the toes and the outer air. The first is arrived at by wearing loose coverings to the legs, avoiding garters, and any sort of constricting bands, and by having the socks well fitting and made in series, so that when three pairs are being worn the second sock fits easily over the first, and the third easily over the other two. The outer coverings, for the sake of utility, must be well-fitting, but must be sufficiently loose and allow a non-conducting air-space between them and the feet. This is largely obtained through the socks, which, made of wool, contain a lot of air in their meshes. It is important also to see that, as far as possible, this air-space is not replaced by damp. Thus the outer covering must permit of ventilation to prevent the accumulation in the socks of perspiration moisture. Rubber boots, for this reason, are unsuitable. The outer coverings as put into use consist either of finnesho made from reindeer hide or of specially designed boots with strong leather soles and strong, closely-woven canvas tops. Felt boots are also sometimes used. Further, to obviate the difficulty of perspiration, sennegrass, which takes up moisture and dries again rapidly, is packed into the finnesho or boots each morning, and is removed each night to dry. It dries so rapidly that, if spread out, it is quite ready for use the next day. Socks are taken off always at night; no experienced explorer would ever dream of keeping on during the night the socks he had worn during the day, a temptation to which the inexperienced is very prone. It is a rather surprising matter of experience that socks placed during the night between one's jersey and the underclothing will have dried out considerably by morning (even a wet box of matches can be rendered fit for use in this way). They cannot be left out in the open air because, with the slight moisture in them from perspiration, they would freeze absolutely stiff in the shape in which they had been hung out.

Oils and grease, which are regarded by a great many people as being non-conductors, and "fine stuff to keep you warm," should be avoided as much as possible, for they conduct cold readily. Everything should be done as far as possible to eliminate them both from clothing and from skin. I have nothing to say here with regard to the use of whale oil in the army; the pros and cons are numerous, and space does not permit me to enter fully into the question; but as a result of observations and experiments, in the Antarctic, in France, on the Italian mountains, and in Northern Russia, I am fully convinced that the ideal to aim at for the prevention of frost-bite is dryness and the exclusion of fats and oils.

From the point of view of an expedition this may be illustrated in many ways. During a visit to the whaling station of South Georgia, where whale oil abounded, I made a practice of rubbing the oil into my boots, with the object of making them warmer and more waterproof. I discovered that it had the opposite effect. The whalers informed me that this was a matter of common experience amongst them, and that they made a practice of removing as much whale oil as possible from their boots each night. Whilst in the Antarctic it was often my duty to flense and cut up seals. In the process my left hand grasped the seal and became well anointed with blubber oil. My right hand held the flensing knife and was not so anointed. Following the operation I wiped my hands with snow, which did not completely remove the grease, dried off surplus moisture, and replaced them in mitts. When returning to camp my left hand was always cold, whereas the right hand remained comfortably warm.

After the loss of the *Endurance*, with stores, it became necessary for members of the party to wear, without change, the same clothes for the best part of a year. Parts of them became very greasy; the cold could be felt readily "striking through" these greasy parts in marked contradistinction to the non-greasy parts. Socks which had been worn for some time and become slightly greasy were not so warm as clean dry socks.

Scurvy.

With regard to scurvy, a disease which has interfered with many Polar expeditions, much new work has been done in recent years, and the numerous investigations and results published in medical papers. From the point of view of a Polar expedition it is wise to regard the disease as having two different causes: (1) The deficiency of a vitamine; (2) a gastro-intestinal intoxication, or the direct action of small but potent ptomaines contained in badly preserved meat. In spite of the extremely convincing work on vitamines there is still the possibility that this latter factor may come in, and only the very best preserved foods, obtained from reliable firms, should be used.

Sir Ernest Shackleton has always realised the importance of variety in food, both from a mental and physical point of view. Thus in the Antarctic expedition one could never tell the day of the week by the food supplied, and some new and fresh dainty was constantly appearing. Even before the loss of the *Endurance* in the days of plenty fresh meat was constantly served, and the cooking was always good.

Some Questions Answered.

A question often put to me by medical men is with regard to the functions of defæcation and micturition. These are performed in the usual way, though certainly often under the most uncomfortable conditions. I have never seen perineal or anal frost-bites, although it is reported that one of the men who accompanied Sir Ernest Shackleton across South Georgia incurred frost-bite of the penis. It certainly was not serious, and produced no permanent disability. Many times men who went outside in cold, and especially in windy, weather, returned extensively frost-bitten in the face and hands and feet, but not in the private parts. In the case of severe and prolonged blizzards it might be necessary to defæcate in a tent, a hole being dug and instantly refilled with snow; but the majority of men will prefer to face the most unpleasant weather conditions out of doors. This suggests a small but important point: in cases of constipation the greatest care must be exercised in purgation not to produce too violent a result. Should a sudden blizzard arise it would be the greatest hardship to a man to have to face the violence of the elements too many times.

Another interesting point is that members of the Antarctic expedition, owing to the loss of the *Endurance*, were compelled to go for a prolonged period (about ten months) without a wash or a change of clothing. I have been asked how this affected the skin. It was found at the first hot bath that the skin round the the knees and elbows, where the clothes rubbed, had become begrimed and required two or three good scrubbings; for the rest the skin was beautifully white and unusually soft and satiny to the touch. This condition lasted from two to three months, when the skin gradually returned to normal. Nasal catarrh, the so-called "cold in the head," did not exist; there was not one case till we returned to civilisation, when almost without exception every member was attacked and had difficulty in throwing off the condition. There is another point on which I have been asked—namely, growing a beard. I think it is almost universally agreed upon amongst modern explorers that a beard is not a good thing. True, it has certain advantages in that it is warming and protects the face and neck from winds. The great disadvantage is that moisture from the breath issuing from mouth and nostrils impinges on it and freezes, forming in a short time a solid mass of ice on the face which in itself is not comfortable, and when one enters a warm room or a sleeping-bag thaws out with unpleasant results. Stefansson ("My Life with the Eskimo") advocates clean shaving, but in this heroic measure few others will be found to agree, and is, of course, quite out of the question when performing a sledge journey. The custom most commonly adopted is close clipping with the ordinary fine barbers' clippers, performed at least once weekly.

The cold keen air of polar regions acts on the body like champagne, and fills one with a joy of living not experienced in tropical or even temperate climates. Both man and dogs gain in bodily vigour the further they penetrate over the Circle. Appetites are increased, and on the plain well-cooked food everyone puts on weight. The dogs become much more lively, a condition manifested by more fierce and frequent fighting; their coats grow thicker, and the clamour at feeding time becomes absolutely riotous. Every morning shows them madly keen to get into harness, and though hard worked and rigidly disciplined, they show a joy in existence rarely exhibited by the leisured animal at home. On the other hand, it is a bad country to be ill in. There are few comforts such as we know them, no warm and pleasant sick-rooms, no cool, clean sheets, or gentle women. In cases of sickness amongst the dogs, facilities do not permit of artificially warmed housing, and they rely on their own body heat and the insulation of their thick coats. It is here that the value of the bushy tail is seen, and also the habit, well known, even in domestic dogs, of twisting round and round in a circle before finally settling down to rest. The sledge-dog does the same in the snow as the pet dog does on the carpet, producing thereby a small sheltered hollow into which he coils himself, and, curling his bushy tail over the unprotected parts of his face, presents when asleep the appearance of a round ball of fur. When from whatever cause the animal's vitality is lowered and the temperature subnormal, it is unable to resist the intense cold, and unless taken to the lee of a warm pipe, or placed in some improvised warm shelter, rapidly succumbs.

It may be of interest to mention that dogs can exist when buried under several feet of snow. On one occasion, after a two days' blizzard, I found the whole of my dogs buried in varying depths of from 4 to 8 feet in a large snow ramp; yet when dug out, except that they were rather sluggish and more difficult than usual to rouse, they were perfectly normal. In ice regions it is unnecessary to water dogs—they obtain all that is required by eating snow.

One more point of interest: salt ice when piled up has the peculiar property that after two to three days the salt leaves the top pieces in the pile, so that they become quite fresh and can be melted down for use as drinking water. But for this property existence on floe ice would be impossible.

There are times in these inhospitable regions when one hates them and the longing for home is intense. Yet the return to civilisation is not altogether unmingled with regrets, nor is the prospect of another visit devoid of a feeling of "uplift" and pleasurable anticipation.

A NURSES' TRAINING COLLEGE IN BRUSSELS.—In memory of Edith Cavell and Mme. de Page the Rockefeller Foundation has given Fr.43,000,000 for the establishment of a training college for nurses in connexion with Brussels University Medical School.

VITAL STATISTICS OF LONDON

DURING FEBRUARY, 1921.

In the accompanying table will be found summarised statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the ten diseases notified in the table was equal to an annual rate of 10·0 per 1000 of the population, estimated at 4,531,971 persons in the middle of 1920; in the three preceding months the rates had been 15·2, 11·9, and 10·4 per 1000. Among the metropolitan boroughs the lowest rates from these diseases were recorded in Chelsea, the City of Westminster, St. Marylebone, Hampstead, Holborn, and Lambeth; and the highest in Fulham, Bethnal Green, Poplar, Battersea, and Greenwich. The prevalence of scarlet fever was about 10 per cent. less than in the preceding month; this disease was proportionally most prevalent in Hammersmith, Finsbury, Bethnal Green, Stepney, Poplar, Southwark, and Bermondsey. The Metropolitan Asylums Hospitals contained 3799 scarlet fever patients at the end of the month, against 5508, 4729, and 4112 at the end of the three preceding months; the weekly admissions averaged 464, against 780, 590, and 489 in the three preceding months. Diphtheria was slightly more prevalent than in the preceding month; the greatest proportional prevalence of this disease was recorded in Paddington, Islington, Shoreditch, Bethnal Green, Battersea, and Greenwich. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 2604, 2615, and 2648 at the end of the three preceding months, numbered 2766 at the end of February; the weekly admissions averaged 333, against 360, 316, and 319 in the three preceding months. The prevalence of enteric fever was appreciably less than in any of the six preceding months; of the 14 cases notified during the four weeks ended Feb. 26th, 3 belonged to Stepney, 2 to Islington, 2 to Paddington, and 2 Wandsworth. There were 9 cases of enteric fever under treatment in the Metropolitan Asylums Hospitals at the end of the month, against 16, 15, and 11 at the end of the three preceding months; the weekly admissions averaged 2, against 3, 2, and 3 in the three preceding months. Erysipelas was proportionally most prevalent in Paddington, Fulham, Bethnal Green, Poplar, Southwark, and Deptford. The 25 cases of puerperal fever included 3 in each of the boroughs of Hammersmith, Islington, Lambeth, and Deptford, 2 in Stepney, and 2 in Poplar. The 17 cases of cerebro-spinal meningitis included 2 in Stepney, 2 in Southwark, and 2 in Lambeth; while the 2 case of poliomyelitis notified during the month belonged respectively to Hammersmith and Hackney.

The mortality statistics in the tabie relate to the deaths of civilians actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the four weeks ended Feb. 26th the deaths of 4850 London residents were registered, equal to an annual rate of 14·0 per 1000; in the three preceding months the rates had been 13·1, 14·2, and 12·5 per 1000. The death-rates ranged from 11·6 in Camberwell and in Woolwich, 11·8 in Deptford, 12·2 in Wandsworth, and 12·9 in Lambeth, to 16·7 in Bethnal Green, 16·8 in Holborn, 17·1 the City of London, 17·2 in Chelsea, and 18·7 in Kensington. The 4850 deaths from all causes included 250 deaths which were referred to the principal infectious diseases; of these, 7 resulted from measles, 28 from scarlet fever, 92 from diphtheria, 43 from whooping-cough, 1 from enteric fever, and 79 from diarrhœa and enteritis among children under 2 years of age. No death from any of these diseases was recorded in the City of London. Among the metropolitan boroughs the lowest death-rates from these diseases were recorded in Paddington, the City of Westminster, Hampstead, Hackney, and Lewisham; and the highest in Kensington, Stoke Newington, Shoreditch, Bethnal Green, Bermondsey, Battersea, and Wandsworth. The 7 deaths from measles were only one-sixteenth of the average number in the corresponding period of the five preceding years; of these, 4 belonged to Stepney and 2 to Islington. The 28 fatal cases of scarlet fever exceeded the average by 13; of these, 3 belonged to Bethnal Green, 3 to Wandsworth, and 3 to Woolwich. The 92 deaths from diphtheria exceeded the average number by 24; the greatest proportional mortality from this disease occurred in St. Pancras, Stoke Newington, Poplar, Bermondsey, Battersea, Wandsworth, and Greenwich. The 43 fatal cases of whooping-cough were 70 fewer than the average; of these, 8 belonged to Islington, 5 to Kensington, 4 to Southwark, and 3 each to Lambeth, Battersea, and Wandsworth. One death from enteric fever was registered during the month, against an average of 4. The 79 fatal cases of infantile diarrhœa were 13 in excess of the average number; the greatest proportional mortality from this disease occurred in Chelsea, Shoreditch, Bethnal Green, Southwark, Bermondsey, and Battersea. In conclusion, it may be stated that the aggregate mortality in London during February from these principal infectious diseases was 34 per cent. below the average in the corresponding period of the five preceding years.

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING FEBRUARY, 1921.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated civil population, 1920.	Notified Cases of Infectious Disease.											Deaths from Principal Infectious Diseases.								Deaths from all causes.	Death-rate per 1000 living.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON	4,531,971	—	1902	1357	—	14	—	25	162	17	2	3479	10·0	—	7	28	92	43	1	79	250	0·7	4850	14·0
West Districts:																								
Paddington	149,673	—	47	61	—	2	—	—	8	1	—	119	10·4	—	—	—	—	2	—	—	2	0·2	167	14·5
Kensington	164,177	—	55	33	—	—	—	1	7	—	—	96	7·6	—	—	1	4	5	—	4	14	1·1	235	18·7
Hammersmith	136,200	—	95	28	—	—	—	3	4	—	1	131	12·5	—	—	2	2	—	1	2	7	0·7	147	14·1
Fulham	158,621	—	81	62	—	—	—	1	8	1	—	153	12·6	—	—	—	3	—	—	3	6	0·5	169	13·9
Chelsea	62,987	—	9	12	—	—	—	—	2	—	—	23	4·8	—	—	—	—	1	—	3	4	0·8	83	17·2
City of Westminst'r	132,615	—	18	17	—	—	—	1	2	—	—	38	3·7	—	—	—	—	2	—	1	3	0·3	153	15·0
North Districts:																								
St. Marylebone	101,856	—	26	17	—	—	—	—	3	—	—	46	5·9	—	—	—	1	2	—	1	4	0·5	103	13·2
Hampstead	91,519	—	20	16	—	—	—	—	2	—	—	38	5·4	—	—	—	—	—	—	1	1	0·1	92	13·1
St. Pancras	228,178	—	83	52	—	1	—	—	7	—	—	143	8·2	—	—	—	8	2	—	3	13	0·7	232	13·3
Islington	335,907	—	95	136	—	2	—	3	4	1	—	241	9·4	—	2	1	8	8	—	4	23	0·9	391	15·2
Stoke Newington	52,984	—	26	11	—	—	—	—	—	—	—	37	9·1	—	—	—	2	1	—	1	4	1·0	62	15·3
Hackney	225,372	—	114	77	—	—	—	—	6	—	1	198	11·5	—	—	1	3	—	—	3	7	0·4	230	13·3
Central Districts:																								
Holborn	39,676	—	5	14	—	—	—	—	—	1	—	20	6·6	—	—	1	—	1	—	—	2	0·7	51	16·8
Finsbury	78,291	—	46	14	—	—	—	1	3	1	—	65	10·8	—	—	1	1	—	—	2	4	0·7	92	15·3
City of London	14,447	—	5	3	—	—	—	—	—	—	—	8	7·2	—	—	—	—	—	—	—	—	—	19	17·1
East Districts:																								
Shoreditch	102,044	—	49	45	—	—	—	1	2	1	—	98	12·5	—	—	2	2	2	—	5	11	1·4	118	15·1
Bethnal Green	114,471	—	76	67	—	1	—	1	11	1	—	157	17·9	—	—	3	2	—	—	6	11	1·3	147	16·7
Stepney	241,770	—	147	50	—	3	—	2	11	2	—	215	11·6	—	4	2	2	—	—	6	14	0·8	264	14·2
Poplar	159,766	—	89	55	—	—	—	2	13	1	—	160	13·1	—	—	1	6	—	—	2	9	0·7	172	14·0
South Districts:																								
Southwark	187,142	—	110	36	—	—	—	1	11	2	—	160	11·1	—	1	2	—	4	—	5	12	0·8	213	14·8
Bermondsey	129,189	—	77	41	—	—	—	1	4	—	—	123	12·4	—	—	—	5	—	—	5	10	1·0	136	13·7
Lambeth	293,572	—	107	33	—	1	—	3	11	2	—	157	7·0	—	—	2	2	3	—	4	11	0·5	290	12·9
Battersea	165,664	—	83	71	—	—	—	1	8	—	—	163	12·8	—	—	—	9	3	—	5	17	1·3	189	14·9
Wandsworth	346,990	—	124	134	—	2	—	—	8	1	—	269	10·1	—	—	3	15	3	—	5	26	1·0	324	12·2
Camberwell	284,712	—	100	104	—	1	—	—	5	—	—	210	9·6	—	—	1	6	1	—	4	12	0·5	254	11·6
Deptford	115,636	—	46	46	—	—	—	3	6	1	—	102	11·5	—	—	2	2	—	—	2	6	0·7	105	11·8
Greenwich	102,408	—	52	46	—	—	—	—	3	—	—	101	12·9	—	—	—	4	1	—	1	6	0·8	108	13·7
Lewisham	174,438	—	43	48	—	1	—	—	6	1	—	99	7·4	—	—	—	4	—	—	1	5	0·4	178	13·3
Woolwich	141,666	—	74	28	—	—	—	—	7	—	—	109	10·0	—	—	3	1	2	—	—	6	0·6	126	11·6

* Including membranous croup.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Increase of Prostitution and Syphilis in Vienna during the War.

IN a recent report of the Board of Health interesting data are given as to the part played by lues in the mortality statistics of this city. From 1911 to 1920 a total of 1125 cases observed post mortem in Vienna were strictly due to syphilis; gummatous conditions and congenital or other absolutely sure manifestations were considered proof of syphilitic causation of death. In 1911 114 cases were classified as belonging to this group; the figures for the years till 1918 were respectively 107, 109, 147, 97, 91, 90, 79. In 1919 a sudden rise to 129 occurred, increased in 1920 to 162. During the years 1909–19 78 per cent. of these deaths from syphilis occurred amongst infants under 1 year old. From 1914 to 1918 the falling birth-rate was accompanied by a marked drop in deaths from syphilis; but in 1919 the birth-rate went up only 25 per cent., as compared with the previous year, whilst deaths from syphilis were increased by 63 per cent., and in 1920 the birth-rate rose 35 per cent., and the syphilis death-rate rose more than 100 per cent. over the 1918 figures. The children born in 1919 and 1920 have thus suffered very severely; this fact is not surprising, since nearly every healthy man between the ages 19 and 50 had been called to the front during the years of war. Complementary information is given by reports of the sanitary department of the police in Vienna. It is the function of this department to control both the declared and the clandestine prostitutes. By surprise visits to hotels, &c., and by control of the streets, such women are supervised and subjected to exact examination, when those found to be ill or infectious are at once taken to hospital. Thus in 1918, of 5540 females examined 27 per cent. had to be sent to hospitals; in 1919, of 6666 examined 25·4 per cent. were diseased; in 1920, 7240, 29 per cent. diseased. More than 60 per cent. of these women are below 24 years of age, and fully 20 per cent. of the total are under 18 years. These young girls have little or no knowledge of self-protective hygiene, and quickly fall victims to venereal infection. More than 50 per cent. of them were found infected, whilst of the older prostitutes about 22 per cent. needed immediate treatment. In a large number of cases the motives for taking up this "career" were noted; poverty, hunger, and the desire for fine clothing were responsible in about half the cases investigated, whilst moral depravity, bad example, or lack of proper supervision and care accounted for the other half.

A Rare Case of Torsion of the Entire Omentum.

At a recent meeting of the Medical Society of Vienna Dr. Hirsch demonstrated a rare specimen obtained a few days ago by operation on a medical man. The patient had been suffering from inguinal hernia for a long while. He had always succeeded in retaining the hernia by means of a pad, but it had for a long while been troublesome. On the day before operation the reposition of the hernia, which had again caused trouble, was impossible, and serious symptoms with pain set in. A diagnosis of incarcerated hernia was made and operation performed immediately. On incising the hernial sac it was found empty, except for some liquid. It was therefore clear that the surgeon had acted upon a wrong diagnosis. Laparotomy was then performed; the abdomen being opened, a large purplish tumour appeared, which was soon discovered to be the omentum majus, turned on its own axis three times 360°. The pedicle was as thick as a man's forearm. Total ablation of the tumour had to be performed, and the patient made an uninterrupted recovery. Cases of torsion of the entire omentum are sufficiently rare to justify record of them, and only in a very few instances has a correct diagnosis been made before operation. The mechanism of the condition is that the appendices epiploicæ become lodged in an existing hernial sac, and are subject to traumatism by a pad and by repeated handling, reposition, or other manipulations; they then grow thicker and heavier and stretch, causing a torsion of parts and, in suitable cases, of the entire omentum. The pathological changes taking place in the tissues are so rapid in their onset that it is hardly possible to do anything less than to remove the entire strangulated portion of the organ even after a short duration of the condition.

Renewal of Dispute Between Medical Dentists and Dental Mechanics.

In July, 1920, a Bill passed the National Assembly in Vienna, which regulated the relations between medical dentists and dental mechanics in a way thought at that time to be satisfactory to all parties concerned. It was the result of a compromise, arrived at by coöperation of the representatives of the profession and of the dental mechanics. Its chief features were the following: (1) All persons being at the time of the commencement of the Act engaged in dentistry, either as mechanics or as medical dentists, are entitled to practise their profession without restriction, except that purely surgical interferences were permitted only to the medical dentists, extraction of teeth being regarded as a surgical interference. (2) The occupation of dental mechanic should gradually die out as an independent vocation by the fact that no new licence should be given except to a medical dentist—i.e., a doctor of medicine. (3) The mechanic should in future be only an assistant of the doctor, except those 650 men who at present had offices of their own and worked both for the doctors and their own patients. This understanding, however, was not long in force. The mechanics are not satisfied with permission to excavate and fill the teeth besides making the mechanical appliances and prostheses. They now want also to be entitled to perform surgical operations, extractions—in fact, to be regarded as perfectly equal in their rights to the medical dentists. Opposition to their demands has been answered by a mechanics' strike. The mechanics' organisation has caused all apprentices and assistants to the medical dentists to resign their offices, and has offered them employment with the practising mechanics. The medical profession are endeavouring to settle the problem by enlightening the public on the dangers and risks offered by such a state of affairs, but adhere to the opinion that it is the duty of the Government to make the mechanics obey a law passed only half a year ago with their active consent.

Increase of Rickets in Austria.

One of the chief evils derived from malnutrition is the spread of rickets amongst Austrian children. The Board of Health has tried to obtain reliable data as to the frequency of this condition, but returns cannot be obtained from many rural districts; and large numbers of peasant families never summon a medical man. Investigators had therefore to be content with the fact that only the severer cases were reported. Rickets has without a doubt become much more frequent during and after the war, especially amongst children over 12 years old. In 1913 5 principal children's hospitals showed on their books 640 cases of rickets; in 1919 the figure stood at 2859, amongst them 589 over 12 years of age. The lack of milk, of fats, and farinaceous food was especially felt amongst the poorer classes. Amongst infants the increase of rickets was not so much marked, for breast-feeding was more often resorted to, owing to lack of other food for the babies. The frequent appearance of rickets amongst older children (above 12) seems to be analogous to the frequency of osteomalacia amongst adults in these times.

Results of Examination of School Children by School Doctors.

Interesting facts were ascertained at a recent meeting of school doctors about the pathological conditions found amongst school children in rural districts. In one of our most cultivated country towns 330 boys and 310 girls were examined, all 6 years of age, just at entering school. Their average weight was: boys 19 kilos, girls 18·66 kilos; height: boys 111½ cm., girls 110; circumference at nipple of breast: boys

58½ cm., girls 56·75. The following conditions were found to be present: Adenoids in 20 boys and 7 girls; swollen glands, 103 cases each; 30 boys and 18 girls had rickets; 7 children had organic heart disease; 12 boys and 35 girls suffered from goitre; 9 boys and 14 girls from myopia; 6 boys and 2 girls had herniæ; 39 boys and 27 girls had an apical lesion with a negative Pirquet test; whilst only 3 each had positive Pirquet. Enlarged tonsils were found in 34 boys and 19 girls, 4 boys and 16 girls were deaf, whilst 12 boys and 27 girls had scoliotic changes and 7 boys were hydrocephalic. The number of backward cases amongst older school children was found sufficiently large to justify the establishing of special classes for them. It appears to be necessary very early to pay special attention to defects of the vertebral column; faulty sitting in school is not so much to blame for scoliosis or flat breast, but an organic change, manifest already in very early life. Gymnastics are required to control such conditions. Also myopia and deafness are often the result of a previous disease or disposition, and not necessarily only due to the traumatism of school teaching. Glands in children are only of importance if they appear in the supraclavicular region—mostly associated with pathological changes in the apices of the lungs.

March 9th.

The Services.

ADDITIONAL PAY FOR OFFICERS ON COMMITTEES.

AN Army Order provides that a field officer on full pay who is appointed to serve on a committee or to act as its secretary in virtue of possessing special scientific knowledge not acquired as part of his normal military duties will receive 15*s.* of additional pay for each day on which such committee sits. A captain or subaltern serving in similar circumstances will have additional pay of 10*s.* a day.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. E. A. Bourke is placed on retired pay on account of ill-health contracted on active service.

Temporary Captains relinquishing their commissions and retaining the rank of Captain: J. Anastasi and A. G. Wright.

TERRITORIAL FORCE.

Lieut.-Col. J. H. Harris, T.D., resigns his commission and retains the rank of Lieutenant-Colonel, with permission to wear the prescribed uniform.

Capt. P. J. Gaffikin to be Major.

Capt. and Bt. Major R. E. Barnsley, R.A.M.C., to be Adjutant of the R.A.M.C. School of Instruction, Northern Division (T.F.).

Lieut.-Col. A. B. Lyon is appointed to command 1st London Casualty Clearing Station.

Major J. R. Benson resigns his commission and is granted the rank of Lieutenant-Colonel.

Major A. W. French and Capt. W. T. P. Meade-King resign their commissions and are granted the rank of Major.

Major A. C. Roper resigns his commission and retains the rank of Major.

Capt. (Bt. Major) E. G. Smith resigns his commission and retains his rank.

Captains resigning their commissions and retaining the rank of Captain: C. F. Backhouse, A. J. H. Iles, S. L. Brimblecombe, C. E. M. Jones, C. H. Maskew, A. V. Maybury, C. F. Glinn, G. C. F. Robinson, B. Dyball, R. V. Solly, R. Jaques, H. Andrew, C. D. Lindsey, W. L. Pethybridge, J. L. Wright, C. Lamplough, J. E. F. Palser, A. W. Power, M. H. Way, and C. H. Saunders.

4th Southern General Hospital: Lieut.-Col. J. E. Square resigns his commission and retains the rank of Lieutenant-Colonel. Major (Bt. Lieut.-Col.) J. W. Gill resigns his commission and retains his rank.

5th Southern General Hospital: Major N. E. Aldridge resigns his commission and retains the rank of Major.

TERRITORIAL FORCE RESERVE.

Lieut.-Col. C. A. Lees, from 2nd London (County of London) General Hospital, to be Lieutenant-Colonel.

LITERARY INTELLIGENCE.—Messrs. W. B. Saunders Company announce for early publication Keen's "Surgery," volumes seven and eight, which will complete the work.—The Williams and Wilkins Company, of Baltimore, U.S.A., announce the early appearance of the first number of the new *American Journal of Tropical Medicine*, of which the annual subscription price, net postpaid, to British subscribers is 23*s.* The journal, which will appear six times a year, is edited by Dr. H. J. Nichols, Major, U.S.M.C., Army Medical School, Washington, D.C.

Correspondence.

"Audi alteram partem."

VANISHING TYPHOID IN PHILADELPHIA.

To the Editor of THE LANCET.

SIR,—Thirty years ago Philadelphia had a death-rate from typhoid fever of 63·9 per 100,000 inhabitants. Last year it was 3·3 per 100,000. The reason is—filtered water. Just how consistently the fall occurred during the installation of the filtration system is well worth noting. This system was commenced in 1899, was completed in 1912, and cost about 28 million dollars. It has been estimated that if the same rate of mortality had held in 1920 as averaged from 1898 to 1908 there would have been 900 deaths and about 6000 prostrated from typhoid; instead of this the total deaths in the entire city were 60, and almost one-half of these were traceable to outside sources of infection. Considering the population of 1,837,924 on July 1st, 1920, this is a wonderful showing. Philadelphia is certainly trying to answer the historic question: If preventable, why not prevented? During the period 1862–1870 there occurred the very high average of 79·9 per 100,000; the next decade showed 58·1 and the rate of 45·2 in 1901 to 1910 suddenly broke to 12·5 in 1912, when all the water was filtered. The recent years show the following rates: In 1914 the rate was 7·5; in 1917 it was 6·2; in 1918 it was 4·8; in 1919 it was 4·4; and in 1920 it was 3·3. Incidentally the death-rate from diarrhœa and enteritis has fallen 40 per cent. in eight years and the mortality of children under 1 year 20 per cent.

Philadelphia takes her water-supply partly from the Delaware river and partly from the Schuylkill river. Higher up on both these rivers are active manufacturing cities such as Trenton and Norristown, but the problem seems to have been solved to render the water pure notwithstanding this handicap. When the filtered water was first sterilised it was accomplished by the use of hypochlorite of lime; but since 1914 liquid chlorine has supplanted the hypochlorite, and is applied as required to the effluents of all filter stations. The quantity of liquid chlorine is determined by results of daily analyses of effluents. Thus Philadelphia fortunately provides for all its inhabitants water that is sterilised after filtration. I am, Sir, yours faithfully,

GUY HINSDALE, M.D.

Hot Springs, Virginia, March 12th, 1921.

*** Dr. Hinsdale's letter provides a pendant to the annotation on water-borne typhoid in our issue of March 12th.—ED. L.

GRAVES'S DISEASE.

To the Editor of THE LANCET.

SIR,—In the recent discussion on Graves's disease at the Royal Society of Medicine, reported in recent issues of THE LANCET, it seems strange that so little was said as to the danger of removing, or interfering with the blood-supply to, the parathyroid glands, for it is a very real risk. Sir William Stokes removed one-half of an enlarged thyroid from a girl of 18 years; the case did well; three and a half months later he removed the remaining half; in 11 days there occurred mental torpidity, slowness of speech, swelling of eyelids, face, and hands, and also dilatation of pupils, disturbances of respiration, and rapidity of pulse and death occurring 21 days after operation. There is little doubt that the latter group of symptoms and the fatal termination were due to the removal of the parathyroids. It is clear that in partial operations the complication is rare, and it seems natural to think that the best operation in Graves's disease would be, as Crotti recommends, to remove the front part of both lobes and the isthmus, avoiding the back part of the lobes where the parathyroids and recurrent laryngeal nerves lie; but the number and distribution of the parathyroids vary and the danger cannot be wholly avoided; we are

therefore indebted to Dr. W. S. Halsted for informing us how to recognise and treat the symptoms. A patient under his care on the eighth day after a thyroid operation had several attacks of numbness commencing in the lips and extending to the face and arms. The patient said the attacks were indescribably awful and that she would sooner die than have many more of them. Dr. Halsted was so confident of the cause of the symptoms that he immediately sent to Dr. W. G. MacCallum for dried parathyroids of beeves; the effect of parathyroid exhibition was almost instantaneous and most marvellous; it is stated that an equally good result can be obtained by the administration of calcium salts. In experiments on the lower animals in which the parathyroids have been removed, in a minority of cases the animals can be kept alive for weeks and months and even years by putting them on a diet consisting solely of milk. This is the best way to exhibit calcium, for 10 gr. of the lactate of calcium only corresponds to 2 oz. of milk, which would probably have no effect. Equally good results, it is said, can be obtained by the salts of strontium, and also by those of magnesium and barium, but as these last two are poisonous they cannot be used; thus there are three specific remedies for aparathyroidea—namely, parathyroids and the salts of calcium and strontium.

It is said there is no specific treatment for Graves's disease, but Dr. Lockhart Gillespie cured three children of about the age of 10 years by giving them each 10 gr. of the iodide and 5 gr. of the bromide of strontium three times a day, in 33, 21, and 30 days respectively.[1] Further, we cannot be sure that the improvement which occurs in cases of Graves's disease when kept in bed and fed on a diet into which milk enters largely is not due in part to the specific action of the calcium in the milk.

There is a connexion between Graves's disease and diabetes: it is therefore interesting to note that Dr. A. S. Donkin, in a farmer with diabetes, by placing him on a diet solely of skimmed milk in 16 days, reduced the amount of sugar in the urine from 25 gr. to the ounce to nil, and this notwithstanding the large amount of sugar in 8 pints of skimmed milk.

I am, Sir, yours faithfully,

WALTER EDMUNDS.

Carlton-road, Putney, S.W., March 19th, 1921.

THE PATHOLOGY OF RELAPSING FEVER.

To the Editor of THE LANCET.

SIR,—In an account of the discussion following Lieutenant-Colonel J. C. Kennedy's paper on this subject, read at the Royal Society of Tropical Medicine and Hygiene and published in THE LANCET on March 12th, I am quoted as having said with reference to relapsing fever in Mesopotamia "the case mortality among Arabs was 8 per cent., among Indians 1 per cent., &c." The figures given by me related to a series of cases in 1917 and 1918, and were: "The case mortality among Indians was 8 per cent., among Arabs 1 per cent., &c." I am, Sir, yours faithfully,

W. H. WILLCOX.

Welbeck-street, Cavendish-square, W., March 21st, 1921.

VENEREAL INFECTION IN RHINE ARMY.

To the Editor of THE LANCET.

SIR,—I have always found the War Office records regarding venereal disease to be kept most accurately and stated (for public consumption) most confusingly. What we want to know is: (1) What is the V.D. contraction rate for each month, calculated at the rate per 1000 per annum for the Rhine Army, from Jan. 1st, 1919, to Jan. 31st, 1921? (2) What is the average strength of the Rhine Army and the average number of V.D. cases under treatment in hospital or otherwise?

To show how the same facts may be presented in a most misleading manner let me set out the following: On p. 111 of Dr. E. B. Turner's evidence before the National Birth-Rate Commission (Special Enquiry) in November last:—

"In Cologne the numbers varied, hovering about 12,000 men. When I was there the 25th General Hospital, Venereal Disease, with 500 beds, was full, and in addition there were those who were being treated at E.T. centres for mild cases."

And Dr. Turner also told the Commission (I was present at the time) that there was a "waiting list" of V.D. patients. Now if the number of cases actually under treatment, in hospital or otherwise, was 600 for 12,000 troops that would be a rate of (for hospital, plus, say, 100 E.T. cases) *500* per 1000 per annum. This is not an unbelievable rate, because the American Forces in Paris had for January, 1918, a rate of *480* per 1000 per annum. That fact is stated by Lieutenant J. E. Moor,[1] who was the M.O. i/c of the American Medical Report Centre, Paris District. Then disinfection was thoroughly applied, some 72 prophylactic stations being ultimately established, and enormous quantities of calomel tubes were distributed officially and unofficially, and the rate at the end of 1918 for the American forces in Paris district had dropped to *94·6* per 1000 per annum, a great tribute to the American medical officers and the American Red Cross, hampered as they were by public ignorance and mistaken opposition. Later they were misguided also by certain English officials, and began to rely only on depôt disinfection, and hence in the beginning of 1919 their rate had risen to *148* per 1000 per annum. The rate for all troops in U.S.A. (with depôt disinfection) for six months ending Dec. 27th, 1918, was *150·62* per 1000 per annum, and the rate given in the National Birth-Rate Commission's report for American troops on the Rhine in 1920 averages *142* per 1000 per annum.

Now what is the rate for the British Army on the Rhine? Dr. Turner's figures work out at 500 per 1000 per annum. Sir Archdall Reid, giving evidence in the same place, suggested the rate was from 200 to 250 per 1000 per annum, and we have the following official statements:—

1. "The records show that in our Army on the Rhine, which numbers from 11,000 to 12,000 men, the percentage of troops suffering from V.D. is 2·6."—*Evening Standard*, March 6th, 1921.

2. Sir L. Worthington-Evans told Parliament on March 8th, 1921, that "the monthly average of admissions for V.D. to hospital was 1·4 per cent. of the total strength" for period Jan. 1st, 1920, to Jan. 31st, 1921.

These statements are not necessarily contradictory, but they are certainly confusing, not to say misleading. If "the percentage of troops suffering from V.D. is 2·6" for 12,000, then 312 men are in V.D. Hospital. (But Dr. Turner says there were 500 plus E.T. cases!) The figure quoted by Sir L. Worthington-Evans—1·4 per cent. per month—is equal to *168* per 1000 per annum. If that is the average number of V.D. cases, how can 2·6 per cent., or 312 men, be correct? Still less correct is Dr. Turner's statement of 500 in hospital.

I called on the Rev. Talbot Hindley, of St. John's Vicarage, Upper Holloway, to get his evidence as to the facts (free from the angry and unwarranted criticism to which this gentleman has been subjected, mainly because of something he did not say), and he tells me that he gave five Gospel lectures in the Venereal Disease Hospital at Cologne; that many of the patients were not appealed to by his Mission; but that he was officially informed that over half the patients in the hospital did attend his lectures on each occasion, and that on each occasion his audience numbered over 200 men; thus there would be at least 400 men in the V.D. Hospital, besides those receiving out-treatment, of which he knew nothing. All the men who attended his lectures were hospital patients in blues. If this statement is correct, Dr. Turner's evidence is corroborated and Sir L. Worthington-Evans's statement is contradicted.

Finally, on page 233 of the National Birth-Rate Commission's Report there is published a letter from the War Office stating that the rate for June quarter, 1920, was *53·79* (contraction rate); for September quarter, 1920, *38·38*. This means that the rate for the June quarter of 1920 was *215* per 1000 per annum, or

[1] Brit. Med. Jour., Oct. 8th, 1898.

[1] Journal of the American Medical Association, 1920, lxxiv. p. 1158.

nearly as high a rate as the Canadians had when they first landed in England.

The following paragraph I copy literally from the *Times* of May 22nd, 1920, to show what a false impression truthful figures can make:—

VENEREAL DISEASE IN THE ARMY.

Mr. Churchill, in a written answer to Captain Elliot, states that the approximate ratios per 1000 of admissions for venereal disease in the British Army are as follows:—United Kingdom: 1918, 43; 1919, 59; first quarter, 1920, 14·8. France: 1918, 32; 1919, 67; first quarter, 1920, 40·5. Army of the Rhine: 1919, 46; first quarter, 1920, 42·3. The ratios for 1919 and 1920 are to a large extent fallacious, he adds, owing to rapid demobilisation. The latest information shows some improvement in France and Germany.

Now the rates quoted herein for France for 1918 and 1919 are apparently annual rates, and the rate for 1920 is a quarterly rate, hence comparative rates per 1000 per annum are: 1918, *32;* 1919, *67*, or is it 268? 1920, *40·5* × 4, 162. The Rhine rates are, apparently, per 1000 per annum: 1919, *184;* 1920, *169* (March quarter), and on May 22nd Mr. Churchill says there is "some improvement," the "improvement" being a rise to 215 per 1000 per annum for the June quarter, 1920! Now what are the actual facts?—I am, Sir, yours faithfully,

ETTIE A. ROUT,
Late Hon. Sec., New Zealand Volunteer Sisters.

March 18th, 1921.

DANGEROUS DRUGS ACT, 1920.

To the Editor of THE LANCET.

SIR,—"A Member," writing in your issue of March 19th, suggests that I may be mistaken if my letter, which appeared in your columns of the 12th, intended to imply that "the Council of the London and Counties Medical Protection Society voices the medical opinions of the society's contributors, inasmuch as they are not in any way consulted." It is, of course, impossible to take a referendum of members on every subject that comes before the Council of the society, but members are, I think, quite well aware that the opinion of any individual member, if communicated to the Council, receives careful consideration. The great majority of the members of Council and all the officers are elected annually, and are therefore as representative as is possible of the members of the society. Moreover, at the annual meeting (which this year will fall on April 6th) every member who cares to attend can express his opinion on the policy of the Council.

As regards the proposed Regulations under the Dangerous Drugs Act, 1920, I am not aware that any member of the society differs from the unanimous opinion of the Council, and I note that "A Member" himself does not express any disagreement. Of course, it is very seldom that 6000 members of a society will be in absolute agreement on any particular point, but in this case I am not at present aware of any disagreement whatsoever.

We should be very glad to hear from any members of the society who have formed any opinion on the subject. I am, Sir, yours faithfully,

HUGH WOODS,
General Secretary, The London and Counties Medical Protection Society, Ltd.

Craven-street, Strand, W.C., March 18th, 1921.

ANALYSIS OF THE GASTRIC CONTENTS.

To the Editor of THE LANCET.

SIR,—Mr. J. H. Ryffel's paper on this subject in your issue of March 19th gives an incorrect account of the technique suggested by Dr. W. J. Adie and myself and published in THE LANCET of Feb. 26th. Mr. Ryffel states that "recently Cole and Adie have urged the use of thymol-blue working to an end-point, = HCl.N × $10^{-2·6}$, or about N/500."

I had hoped that we had made it quite clear that it is not possible to get correct results from free HCl if one works to a reaction more alkaline than about N/100. He goes on to state that "this indicator would leave a large gap between the total acidity and the free HCl so that it would surely be better to retain dimethyl." I completely fail to see why a large gap is undesirable, since it undoubtedly exists in a great many cases.

I maintain that our technique gives an exact measure of the free HCl and therefore of the actual hydrogen-ion concentration of the gastric contents. Dimethyl gives the whole of the free HCl and an unknown fraction of the combined HCl. If it gave the whole of this combined HCl its use might be defended, but since it gives a figure which nobody can possibly evaluate, it is unfortunate that its use should be advocated by a scientist of Mr. Ryffel's reputation.

I am, Sir, yours faithfully,

Biochemical Laboratory, Cambridge, SYDNEY W. COLE.
March 22nd, 1921.

TREATMENT FOR INTERNAL CANCER.

To the Editor of THE LANCET.

SIR,—Since August, 1916, I have been treating with apparent success cases of internal cancer, as diagnosed clinically, as they occurred in general practice. This fact, and the contrasted failure of my treatment of many cases of external cancer with the same remedy suggest to me a new clue in the treatment of cancer. I believe that carcinoma is almost, if not always, associated with some form of rheumatism which yields to a course of alum taken internally. The effect is not observed in the subjects of external cancer associated with a gouty disposition, and I have found that cancer of the rectum, anus, and bladder does not respond to this treatment. The prescription which I recommended is:—

℞	Alum sulphate	gr. ii.
	Mag. carb. levis	gr. v.
	Potass. citrat.	gr. v.
	Tr. opii	m iii.
	Aq. chloroformi	ʒ ii.
	Aq. ad	ʒ i.

ʒ i. t.d.s.

30 drops of liq. bismuthi et ammon. citrat. being added in the case of gastric cancer.

An illustrative case is the following:—

Mr. S., aged 60. On Dec. 29th, 1919, I found him in bed with temperature 101 F. and a hard, irregular lump in the cæcum. He had lost weight and complained of recent "rheumatic pains" shooting up to the right loin. There was no vomiting, but the abdomen was tympanitic. Tongue clean and pulse 70 and bowels well open. He was put at once on the above alum mixture, with a diet of soda-and-milk, beef-tea, and bread-and-milk. On Dec. 30th calomel gr. i. was given four-hourly for relief of distension.

Jan. 1st: Irregular and hard lump still there, but less painful and certainly smaller.

Jan. 4th: Calomel is keeping the bowels open; much mucus in the motions, but no blood. Abdomen flatter. T. 100°.

Jan. 7th: T. 99·8°. Growth hardly palpable.

Jan. 9th: T. 98·6°.

Jan. 20th: Putting on weight rapidly with good appetite. Going to the seaside.

This is one out of six cases of hard irregular growth in the cæcum or colon, with shooting pains up to the right loin, treated by this method. Other cases treated with similar success have been carcinoma of the stomach (7), gall-bladder (1), and prostate gland (1). A case of carcinoma of the ovary responded in an encouraging way. I am placing these suggestions on record in order that other practitioners may test a simple but effective treatment in inoperable or incurable post-operative cases.

I am, Sir, yours faithfully,

REGINALD LARKIN, M.D. Lond., M.R.C.S.

London, S.E., March 18th, 1921.

MATERNITY AND CHILD WELFARE CENTRES AND DAY NURSERIES.—In view of inquiries from local authorities and others interested, the Ministry of Health have issued a revised list, with index, of maternity and child welfare centres in England and Wales, including, for the first time, a list of day nurseries. The list contains the names and addresses of 735 centres and 140 day nurseries conducted by voluntary societies and of 1188 centres and 44 day nurseries conducted by local authorities. At about 150 of the centres special dental treatment is provided, while others have special arrangements for eye and ear treatment. While the centres in the first part of the statement are primarily consultation centres for nursing mothers and children under 5, some are fully equipped for ante-natal consultations. There are now separate lists for residential and non-residential institutions. The Ministry advise that consultation centres should be reserved for healthy women and children, and that where possible treatment should be given at special treatment centres which may be established at a hospital or combined with a school clinic, and may take cases from a number of consultation centres. The list is obtainable from His Majesty's Stationery Office, or through any bookseller, at 2*s.* net.

Parliamentary Intelligence.

HOUSE OF LORDS.

WEDNESDAY, MARCH 16TH.

Special Committee on Venereal Diseases.

Lord WILLOUGHBY DE BROKE called attention to the Report of the Special Committee on Venereal Diseases, asked the Government what steps were being taken to give effect to its findings, and moved that the Report should be printed and issued as a Parliamentary paper. He said on the last occasion when he raised the question Lord Sandhurst, in response to a request for certain figures with regard to the Portsmouth area and the incidence of venereal disease there as compared with other areas in the United Kingdom, produced a figure which, owing to its magnitude, was positively astounding. He presumed that the noble lord was supplied with the figure by the Ministry of Health. Lord Sandhurst, or at any rate those who supplied him with the figures, knew perfectly well that he (Lord Willoughby de Broke) was asking for figures with regard to the area of which Sir Archdall Reid was the A.D.M.S. in order to prove that under the system of self-disinfection which he had caused to be carried out there was a decrease in venereal disease to a point that was almost negligible. It would almost seem that at the Ministry of Health they were animated by a desire to discredit the figures given by Sir Archdall Reid, because they roped into Lord Sandhurst's answer not only the venereal cases in Sir Archdall Reid's command, but all the other infections in the whole of the district, as well as those which were imported into the district from the outside. Fortunately the whole thing was exposed by Sir Archdall Reid himself, and the fallacy of the figures with which Lord Sandhurst had been supplied was admitted in a White Paper subsequently published by the Government, in which it was shown that the figures given were between three and four times in excess of the actual numbers. He did not charge anybody with a deliberate breach of good faith, but the production of figures of this kind was not calculated to raise public confidence in statements put forward by the Ministry of Health in reference to self-disinfection. The Committee presided over by the Bishop of Birmingham comprised the heads of almost all the various denominations, and also women doctors and physicians and surgeons of the highest merit, and the Government sent their own witnesses to give evidence before it. It was appointed with the consent and approval, if not at the actual instigation, of the Ministry of Health. The Government were therefore bound to take some notice of the Report and to carry its recommendations into effect. The salient features of the Report were, first of all, that the Committee found that sexual continence was compatible with normal health. They concluded with the strongest possible recommendation that in view of the serious situation parents, teachers, ministers of religion, social reformers, and others should combine in a national effort to assert the moral obligation of chastity. With that recommendation the society to which he belonged was in the heartiest accord, and an injunction of that kind was placed at the head of all their leaflets.

The Policy of Self-Disinfection.

With regard to self-disinfection the Committee said:—

"Having regard to the disastrous effects of venereal disease on individual and national welfare, the Committee think that the time has arrived when the Ministry of Health should, through local health authorities, draw public attention to the grave menace to national health and welfare which exists from this cause, and should make it the personal obligation on every individual who exposes himself or herself to the risk of infection from venereal disease to take adequate steps to become disinfected, and to obtain medical advice and treatment where necessary until cured or rendered free from infection. It would then be the recognised duty of every individual who exposes himself or herself to the risk of syphilis or gonorrhœa to obtain and apply efficiently suitable disinfectant remedies immediately after intercourse, and, in the event of the development of symptoms of disease, to seek medical advice at the earliest opportunity."

The Committee further stated that no obstacle should be placed in the way of people obtaining the right disinfectants from the chemists, and that if necessary the law should be altered to enable them to do so. It was not really necessary to alter the Act of 1917; it was only necessary that the Ministry of Health should put one of its sections into operation, and through the local health authorities take such steps as would enable chemists to sell to people asking for them such things as were duly authorised by the Ministry and those in authority. The Committee very wisely were of opinion that no further reliance could be placed on an increase of the provision for early treatment of the symptoms. To provide sufficient of them to serve the whole population was impracticable, and in the present attitude towards public expenditure it was out of the question. At the best it meant delay of disinfection, and he did not see why the ratepayers and taxpayers should pay for keeping houses where the incontinent might go. It was not denied that the rate of venereal infection in this country was a matter of grave public concern; that it was alarming; that it ought to be, and must be, dealt with; and that nothing very much was being done. Those who favoured the policy of self-disinfection did not shut their eyes to all the other means which might be brought forward some day for the purpose of stamping out, if possible, venereal disease. But the particular policy they were concentrating on at the moment had this advantage: it could be carried out immediately by the Ministry of Health. Supposing they promoted a Bill (which a lot of people thought ought to be done) to make it a criminal offence to communicate the disease to somebody else; there was a very large and highly organised body of opinion in this country which was dead against that. It was dead against anything that would savour of State regulation of vice or a return to a state of affairs analogous to that which prevailed under the Contagious Diseases Acts. They would have great difficulty with that. Compulsory notification, so that patients might, if possible be kept under observation for a long enough period to be cured, if ever they could be cured, was a remedy that was full of pitfalls. The society to which he belonged was perfectly prepared to discuss that and all other remedies, but for the moment they had a practical remedy which had proved to be efficient if it was properly tried, and one which was approved by the very important Committee to which he had referred. The official policy was to exhort people not to commit fornication, and then to tell them that if they did they must consult the doctor at once, either before or after the symptoms arose. That policy might be right or wrong in principle, but it had failed in its object. The manner in which the Government were dealing with venereal disease now was a failure; nothing had been done. The Society for the Prevention of Venereal Disease, to which he belonged, did not intend to depart from their policy, because they considered that that policy had been endorsed by the Special Committee. But at the same time he was not going to any conference in the frame of mind of Sir Anthony Absolute. He hoped that an agreement might be found, but everything depended on the attitude of the Government. The Government could either suppress the report or try to ignore it and let the whole thing drift on in the way they were allowing things to drift now in spite of the terrible incidence of venereal disease; or they could take the statesmanlike course and admit frankly that the application of this knowledge had proved to be sufficient where it had been efficiently carried out—they could take it and direct it in a scientific manner. If they did not do that they would be up against a great danger—namely, that the knowledge of self-disinfection was becoming public property. He was very glad to see that several public health authorities had already adopted their policy. There was a meeting held not long ago, at which several medical officers of health in the London district were present, and a resolution was passed unanimously adopting the policy of self-disinfection.

Drawbacks in Application to Civilian Population.

The Bishop of LONDON quite agreed with the noble lord in asking the Government to take the Report into consideration, but he pointed out that there was a very great deal said in the Report against self-disinfection. Who should decide when doctors disagreed?—because it was impossible to describe a greater contrast than that between the evidence of Sir Archdall Reid and that of Colonel Harrison, the man who established venereal disease camps in France. In the Committee itself there was a tremendous difference of opinion. Even in the army a system of self-disinfection, except under skilled instruction, was practically valueless. Colonel Harrison, who supported the practice with hope, thinking that it was going to be a great cure, found tremendous disappointment because it did not come up at all to his expectations. If it had failed in the army, how much more would it fail in a civilian population? And when they found that in order to make it effective every boy and girl had to be instructed from early youth in the use of these things he could not wonder that the people who gave evidence and the members of the Commission said that in many ways the remedy would be worse than the disease. Nothing could be more dangerous than the fancied security which this remedy gave. He was looking at the matter from the medical point of view. From the moral point of view he felt that such a system would debauch the conscience of the country. On the other hand, he thought that the Report was a most fair and modest representation of what was said in the evidence, and he should like it to be shouted from the house-tops that the Committee all agreed that chastity was consistent with the best possible health. He did not say that any individual should not have the right to purchase any disinfectant or cure for any disease from any chemist; he thought they were going too far in shackling individual

liberty if they prevented any person doing that. With regard to the provision of ablution centres by local authorities, it was a wrong thing that thousands of pounds of the ratepayers' money should be spent to save a man from the consequences of his sin. He was strongly in favour of the doctor being allowed, under privilege, to communicate the fact to some parent whose young or innocent daughter might be about to marry a diseased man, and he was convinced by the evidence of a leading surgeon after the war that they ought to go still further—that they had come to the point when they must have a medical certificate of health before marriage.

Lord SYDENHAM said he regretted that when he asked Lord Willoughby de Broke to come to a round table conference with the National Council he declined. If the conference had taken place they would have been spared the unedifying spectacle of two bodies with the same object, the one constantly attacking the other in the press. He hoped that at this late hour the noble lord would join hands with the National Council in the work they were trying to carry out. There was no reason to expect any material result from self-disinfection if it was tried among the civil population. This was not really a medical question at all. Medical science had told them that certain disinfectants used very carefully in a certain way and at a certain time would probably have the effect of averting infection. Medical science had also told them that soap and water used under the same conditions would probably be equally effective. The questions were whether the civil population could be induced to adopt disinfection on a large scale, whether they would use it properly and at the right time, and what steps should be taken to induce them to do it. That was not medical, and the layman was quite capable of discussing it. He agreed that there was no reason why the nature and effects of disinfection should be kept secret. The National Council took it up in 1916 because there were very many cases of venereal disease among the troops. They advocated disinfection in the camps and barracks, and Sir Thomas Barlow took great trouble in carrying it out. They published a pamphlet explaining the uses of calomel and permanganate, and laying great stress on the importance of cleanliness. His organisation did not wish to keep back from the public any information that might be useful in combating the disease, but it could not go so far as his noble friend's society in proclaiming benefits which must be problematical. The Government would be ill-advised if it issued a statement which might be misunderstood, and which in that case would certainly lead to an increase of infection.

Need of Agreement in the Anti-Venereal Campaign.

Lord GORELL said for the last four or five months he had been endeavouring to see what could be done to bring about an understanding between the two societies. He had hoped that with the issue of the Report there might be found to be in it sufficient to make it common ground between them. That had, however, not been possible. Taking into consideration the Report he drew up eight points of policy, but before those points of policy had been before a general meeting of the National Council on March 22nd and had been confirmed it was hardly possible for him to state them in detail to the House. They might not be accepted, but they had received the full approval of the Minister of Health, and they were unanimously passed by a very representative executive meeting. He had read the Report and the whole of the evidence, and he could not see how any Government could possibly take action upon the lines of the Report, because it was made by a Committee of people who held very different opinions. It was his (Lord Gorell's) duty to give the House not opinions but facts on the other side. He had received a letter from a gentleman who was described by the Bishop of Birmingham—the Chairman of the Committee which produced this Report—as one who had given almost his life to the study of venereal disease. He was a member of the Committee, and was chosen to start the evidence. He had been 25 years a surgeon in the London Lock Hospitals, male and female; he controlled the venereal department of Charing Cross Hospital, and during the war he was in charge of a venereal department. He wrote:—

"At two venereal disease clinics—Charing Cross Hospital and the London Lock Hospital, the largest clinic in the Empire—during the last four or five months I have been collecting statistics of the number of patients who have used self-disinfection after intercourse. (A) What disinfectant used? (B) How soon after connection? (C) What degree of thoroughness? The figures are at present not enough to be considered conclusive, but as far as they go they bear out what I have always said: self-disinfection will not diminish even the immediate numbers of true venereal disease. Remotely I believe it will produce an increase of venereal disease by giving a sense of false security. Self-disinfectants have prevented, and will continue to prevent, dirt diseases—e.g., septic sores, &c.

About 20 per cent. of the labouring classes had used self-disinfection and it had failed. About 30 per cent. of the educated classes had used self-disinfection and it had failed. I believe that gonorrhœa is infected directly into the canal, especially in Jews: therefore washing outside is useless. In some of the above cases the appearance of the two diseases was postponed for a very long time, that is, the incubation period was greatly increased—a terribly dangerous happening, as during this period others, wives or other women, had been infected by the 'self-disinfectors.' I do not think it would be wise to quote percentages for this matter yet."

He quoted that to show that there was grave doubt at the present time, and need for a great deal more examination and gathering together of statistics before any definite pronouncement could authoritatively be made. At the same time he heartily supported the view that they could not afford to ignore the evidence or to allow matters to drift.

Further Action Imperative.

Viscount KNUTSFORD said he wanted to urge on the Minister of Health that the time for doing nothing had long since passed, and that they must not be afraid because of possible evils which might never happen to take vigorous action. The figures of venereal disease in this country were almost too great to be believed. At the London Hospital alone they had 23,000 new cases last year; that was four times the number they had a few years ago. It was impossible any longer to do nothing; they must do something. He remembered going to a Christmas party at a hospital, and the doctor took him in to see 40 little children, innocent sufferers (their mothers also innocent sufferers), and he said that if it had not been for the work in that hospital the only place in which he (Lord Knutsford) would have been able to see them would have been in the post-mortem room. If he were Minister of Health he would have a very energetic propaganda. He would preach that continence and chastity were consistent with vigour of mind and body. He would paint in the most awful colours the horrors and the suffering caused by these diseases, and would do everything to instil into the public a fear of contracting these diseases. He would tell them the dangers and how to avoid the dangers. He entirely agreed that self-disinfection, unless it was taught properly, was not an efficient safeguard; but they were not doing anything to give the people the knowledge which was a small protection. It was the duty of those who knew to teach others what they should do. He would open more clinics to which people who were diseased could come to be cured. The expense of the clinics would be very great, and the patients who went to them ought to be made to pay.

The Earl of MALMESBURY, as a member of the Joint Committee which considered the Criminal Law Amendment Bill, said he was more impressed by the evidence given by Sir Archdall Reid than by that of Colonel Harrison. But whether Sir Archdall Reid or Colonel Harrison was right it was the duty of Parliament to consider what steps should be taken, and taken soon, to prevent the spread and increase of this disease.

Lord ASKWITH asked if we were to go on with 800,000 cases of venereal disease in the country and increasing every day? It was absurd. No obstruction should be placed in the way of disinfection. That system had been tried in Portsmouth and other centres. It had been endorsed by some of the principal medical officers of health in some of the most crowded districts. They could not say that those men were wrong in adopting this method of disinfection and in saying that it could well be employed. He should support Lord Willoughby de Broke if he went to a division.

The Earl of CLANWILLIAM said he hoped the Government if they could not agree to his noble friend's motion would do something to help the cause.

Government Proposal for a Round-Table Conference.

Viscount PEEL, replying for the Government, said he trusted that Lord Willoughby de Broke would meet with the others around a table in a month or so and that the societies would arrive at a common policy and advise the Ministry of Health. Lord Knutsford knew well that the object of making treatment free was to persuade the largest possible number of people suffering from these diseases to go to the centres in the national interest, but if the noble lord with his experience thought this treatment ought to be paid for that view would have much weight with the Ministry of Health. He would remind their lordships that the Committee, consisting of medical officers of several Government Departments, reported unanimously against the advocacy of self-disinfection for the civilian population, after considering the war experience of the several armies. As regarded the Report of the Special Committee he would point out that medical opinion was very much divided on the question of self-disinfection. It was very important before any consideration was given to public opinion or moral considerations that they should arrive at some definiteness as to what medical opinion was on this question of disinfection. It was generally agreed that the danger of infection became slight and remote if the process of disinfection was carried out by a qualified medical practitioner. It was at the same time felt that it was not practicable to give such instruction to civilians as would ensure that the disinfectants were

thoroughly and intelligently applied; further, medical authorities held that the spread of knowledge as to the efficiency of disinfectants if properly applied would lead to persons running the risk of infection who would not otherwise do so, and thus spread the disease. Another danger strongly pointed out by the doctors was that these disinfectants would be used in many cases as a substitute for the treatment of the disease. He was sorry to say that he could not give any very definite information at present on behalf of the Ministry of Health because the question would very shortly receive the attention of the Cabinet. He could only say that speeches on that debate would be very carefully considered. The Report of the Special Committee was not an official Report. If it were published as a Parliamentary Paper it would undoubtedly give colour to the view that this was an official Committee and that to some extent the views expressed were authorised by the Government. He hoped that his noble friend would not press the point.

Lord WILLOUGHBY DE BROKE said he should press the matter to a division.

On a division the motion was defeated by 29 votes to 9.

THURSDAY, MARCH 17TH.

Criminal Law Amendment Bill.

The House received the Report of amendments on the Criminal Law Amendment Bill and they were agreed to.

HOUSE OF COMMONS.

WEDNESDAY, MARCH 16TH.

Venereal Disease.

Viscountess ASTOR asked the Minister of Health whether it was proposed to depart from the policy of dealing with venereal disease which was adopted by him on the unanimous recommendation of the Inter-departmental Committee which reported last spring after taking full evidence.—Dr. ADDISON replied: The question whether any modification is required in the policy adopted in dealing with these diseases is now under consideration, and I am not at present in a position to make a definite statement on the subject.—Major FARQUHARSON: Is the right honourable gentleman aware that the great weight of evidence given before the Inter-departmental Committee and before the Birth-rate Commission was entirely against the idea that packets for self-disinfection were efficacious means of stopping or preventing venereal disease?—Dr. ADDISON: I believe that statement is correct, and I think it is also supported by the experience of the various armies, but the whole matter is under consideration.—Major FARQUHARSON: That point is kept in view at all events.

Royal Naval Hospital at Yokohama.

Commander BELLAIRS asked the First Lord of the Admiralty what was the accommodation in beds for patients of the British Royal Naval Hospital at Yokohama; what was the staff and the maximum and minimum number of patients accommodated in 1920 or latest year available; and whether any expense was incurred in 1920 in sending officers or officials to inspect or overhaul the hospital.—Sir JAMES CRAIG (Parliamentary Secretary to the Admiralty) replied: As regards the first part of the question the particulars are as follows:—Accommodation, 97 patients; staff, 1 surgeon-commander, 4 sick-berth staff, and 13 native employees (hired); maximum number of patients under treatment 1920, 8; minimum number ditto, nil. The answer to the last part is in the negative.

Committee on Medical Records.

Sir WILLIAM DAVISON asked the Minister of Health what was the precise composition of the committee set up to deal with medical record cards.—Dr. ADDISON replied: The committee, under the chairmanship of Sir Humphry Rolleston, was composed in all of 17 persons, 14 being medical men. There are attached to the committee as members three lay administrative officers. Of the 14 medical men on the committee four were in insurance practice at the time, and a fifth had been in such practice until shortly before the committee's appointment.

Medical Officers on China Gunboats.

Commander BELLAIRS asked the First Lord of the Admiralty whether there was a medical staff of a surgeon and a sick-berth attendant to a remaining crew of 12 men in each of our river gunboats in China; whether he was aware that the American and French river gunboats did not carry doctors; and whether the Board would consider the economy which could be made by relying on the missionary doctors along the rivers.—Sir JAMES CRAIG replied: The Upper Yangtse has two gunboats, with one medical officer and one sick-berth rating between them; the Lower Yangtse has eight gunboats, with five medical officers and six sick-berth ratings; the West River has four gunboats, with two medical officers and two sick-berth ratings. There no information as to whether the American or French gunboats carry medical officers. It is not considered desirable or, indeed, practicable, to rely on the services of missionary doctors for medical attendance on ships' companies of the gunboats on these rivers. The complements of the vessels vary from 25 to 53, and are not as suggested by the honourable and gallant Member. Owing to the climate and the difficulties as regards obtaining good vegetables sickness has to be provided against, as well as the possibility of casualties in local disturbances.

State Contribution to Health Services.

Mr. TREVELYAN THOMSON asked the Minister of Health whether, in view of the results obtained from the activities of local authorities in the exercise of their powers for the amelioration of the health conditions of their areas, he would see that no curtailment took place in the grants made from the Exchequer in support of school clinics, maternity welfare centres, the care of tuberculosis cases, and similar work, when preparing his estimates for the coming financial year.—Dr. ADDISON replied: My right honourable friend the President of the Board of Education has responsibility in respect of the provision for school clinics. As regarded the other services mentioned the amounts inserted in my estimates for the next financial year are such as are required to provide the State contribution towards existing services and commitments, and also for such extension as can be shown to be necessary for immediate and urgent health requirements.—Dr. NATHAN RAW asked the Minister of Health what grants were made by his department to local authorities towards the cost of the treatment of tuberculosis, and what proportion of the total expenditure was represented by those grants.—Dr. ADDISON replied: Grants approximating to £970,000 will be made during the current financial year towards the expenditure of local authorities on the treatment of tuberculosis. The grants represent less than ½*d.* in the £ on the total sums voted by Parliament for the supply services of the country. In addition to these maintenance grants, grants in aid of capital expenditure amounting approximately to £360,000 will also be made.

Report on Official Statistics.

Mr. WILSON-FOX asked the Lord Privy Seal if he would state when the recommendations of Sir Alfred Watson's Committee on Official Statistics would be published.—Mr. LLOYD GEORGE, Prime Minister, replied: The recommendations of Sir Alfred Watson's Committee on Official Statistics will be published as a Stationery Office publication at an early date.

Public Health (Tuberculosis) Bill.

Dr. ADDISON introduced the Public Health (Tuberculosis) Bill "to make further provision with respect to arrangements by local authorities for the treatment of tuberculosis." The Bill was read a first time.

THURSDAY, MARCH 17TH.

Non-attributable Disability.

Sir THOMAS BRAMSDON asked the Minister of Pensions whether, seeing that a pre-war invalid with ten years' service who served upwards of four years during the war and was invalided with a non-attributable disability received nothing for his war service, whereas a new entrant serving a similar period during the war and invalided with a disability attributed to his own carelessness or neglect could receive an allowance up to a maximum of £150, steps would be taken to remedy this injustice.—Mr. IAN MACPHERSON replied: Men invalided and pensioned before the war who were called up for service were entitled to receive payment of their pensions while serving and to count their further service for increase of pension. Allowances under Article 7 of the Royal Warrant and Order in Council were not intended for men of this class, but for men who had no specific claim to compensation. The allowances are purely temporary and only in very exceptional circumstances would the maximum, or an amount approximating thereto, be granted, and the receipt of a temporary allowance cannot generally compare favourably with the grant of a life pension or increased life pension. If in any very exceptional case it were clear that a temporary allowance under Article 7 would be more to the man's advantage than a life pension, this allowance would be paid to him instead of pension.

Treatment of Neurasthenic Ex-Service Men.

Sir WALTER DE FRECE asked the Minister of Pensions whether his arrangements were now complete for the treatment of ex-Service neurasthenic patients; and how many such men he had hitherto treated.—Mr. IAN MACPHERSON replied: The facilities for the treatment of ex-Service neurasthenic patients have already been greatly extended, and the arrangements made by the Ministry are still in process of development. It would need a prolonged investigation to ascertain the total number of men treated since the formation of the Ministry. The number of officers and men at present under treatment is 9921.

Medical Record Cards.

Mr. ALFRED T. DAVIES asked the Minister of Health whether large numbers of patients' records cards had been inaccurately filled up by medical men or others; whether the numbers had increased during the past three months; whether he was satisfied with the present method of inspection; and to what he attributed the growth of inaccuracy in these returns.—Dr. ADDISON replied: In the filling up of 13,000,000 cards a certain number of inaccuracies are inevitable, but my information is that the tendency is all in the direction of improvement, and the last part of the question does not, therefore, arise. The answer to the third part is in the affirmative.

Advisory Committee on Blind Welfare.

Mr. MYERS asked the Minister of Health whether the term of service of the members of the advisory committee on the blind expired in December last; whether any committee was now in existence; and, if so, would he state its composition.—Dr. ADDISON replied: The answer to the first part of the question is in the affirmative. I am proposing to set up a new advisory committee, and hope to be in a position to announce its composition very shortly.

Financial Position of the Hospitals.

Sir GODFREY COLLINS asked the Minister of Health when the Report of the Committee on Hospital Finances, presided over by Lord Cave, would be published; could he inform the House as to the recommendations of the committee; and what steps he proposed to take in the matter.—Colonel MILDMAY asked the Minister of Health whether the Report of Lord Cave's Committee at present considering the financial position of hospitals was likely to be published soon; and whether, failing the possibility of such early publication, any interim report would be forthcoming, in view of the urgency of the issues under discussion, and of the fact that the future policy in this connexion of the Approved Societies and of other bodies concerned would shortly be considered and shaped.—Dr. ADDISON replied: An interim report is being issued to-day on the question of contributions to hospitals out of the valuation surpluses of Approved Societies. I am informed that the hearing of evidence will be completed by the beginning of May and the Committee hope to present their Final Report before the end of that month.

MONDAY, MARCH 21ST.

Alcoholic Liquors as Medicine.

Sir J. D. REES asked the Prime Minister whether, in view of the fact that beer as well as whisky had been allowed to be a medicine in prohibitionist America, he would arrange to relax the restrictions imposed upon the people of the United Kingdom under the Defence of the Realm Act and Central Control Board (Liquor Traffic).—Mr. LLOYD GEORGE replied: The Government propose to deal with this subject at an early opportunity.

Invaliding Disabilities of Post-war Invalids.

Sir THOMAS BRAMSDON asked the Secretary to the Admiralty whether the invaliding disabilities of post-war invalids would be viewed in the same light as that now obtaining for men invalided during the Great War; and whether the scales recently introduced would be applicable to post-war cases.—Sir JAMES CRAIG replied: Apart from disabilities aggravated by, but not due to, naval service, in connexion with which certain recommendations made by a Medical Committee set up by the Minister of Pensions are now under consideration, the answer to the first part of the question is generally in the affirmative. As regards the second part, a special scale has been approved for post-war cases, based on the principle that the exceptional circumstances inseparable from service under conscription will not be present in the case of a professional service.

Sir THOMAS BRAMSDON asked the Secretary to the Admiralty whether a Pensions Appeal Tribunal, similar to that set up for men invalided during the war, could be constituted to deal with pre-war and post-war disability pensioners.—Sir JAMES CRAIG replied: It is not considered that any necessity arises for a Pensions Appeal Tribunal in the case of the permanent service, having regard to the stringent medical examination applied to all new entries. In any event it would be impracticable to reopen the cases of pre-war disability pensioners.

Pension Appeals in London.

Lieutenant-Colonel Sir FREDERICK HALL asked the Minister of Pensions how many appeal tribunal courts had been set up in the London region; how many appeal cases there were still waiting for the tribunals to deal with; what was the approximate number of cases that were heard by the various tribunals in the London region each week; and what steps were to be taken in order that appellants' cases might in future be decided without their having to wait such a long period for their appeals to be heard as they had in the past.—Sir G. HEWART (Attorney-General) replied: I understand that pension appeal tribunals are distributed in various large centres in England and Wales (including London) in accordance with the number of cases to be dealt with in such centres, which varies from month to month. Since Feb. 28th six tribunals have been sitting in London. Approximately 300 appellants per week have been afforded an opportunity of having their cases dealt with during that period. There are at present 3000 cases awaiting hearing in London, of which 1565 have been received by the Pension Appeal Tribunals during the last month. Up to the present time the average period elapsing between the date on which an appeal was received by the tribunal and the date on which it was listed for hearing has been, I am told, six weeks. Steps to provide for the setting up of additional tribunals are under consideration.

Treatment of Bilharziasis.

Captain THORPE asked the Minister of Pensions whether, in view of the successful treatment by antimony of ex-Service men who contracted bilharziasis during the late war, he could hold out any hope of similar treatment at public expense to pensioners who contracted the disease in the South African campaign and were still suffering.—Mr. IAN MACPHERSON replied: This matter is at present under consideration.

TUESDAY, MARCH 22ND.

Washington Maternity Convention.

On the second reading of the Consolidated Fund Bill Mr. CLYNES and other Members raised the question of Article 3 of the Washington Convention dealing with maternity benefits, and asked the reason why the Government had decided not to ratify the Article and had not brought it before Parliament in the form of legislation.—Dr. ADDISON (Minister of Health) said that the initiation of legislation in this country rested with Parliament, and had the Government ratified the Washington Convention in regard to maternity the position would have been that an outside body would be able to compel the Government to submit legislative proposals to that House against its desires. To that the House would never submit. They had already in this country a system which was double-barrelled for providing maternity benefits—namely, the Insurance Act and the system administered by the local authorities. These recommendations cut right across the system in this country which was acting with singular success. The Washington Convention related only to employed women, which would mean that in this country about 460,000 women would be eligible, while 3,540,000 women, the wives of insured persons, would be excluded. To carry out these recommendations with regard to all these women would cost an additional £15,000,000. The system of maternity and child-welfare cost 1*d.* in the £ on the rates, rather less than £900,000 being contributed out of the Exchequer. The results had been brilliant. The rate of infantile mortality in London had dropped from 106 per 1000 in 1913 to 75 per 1000 in 1920. There had, of course, been contributory causes. People had been better nourished and the national conscience had been more fully awakened since the war.

BOOKS, ETC., RECEIVED.

ARNOLD, EDWARD, London.
Psychology and Psychotherapy. By William Brown, M.D. With a Foreword by W. A. Turner, M.D. Pp. 196. 8*s.* 6*d.*

BAILLIÈRE, TINDALL, AND COX, London.
Treatment by Hypnotism and Suggestion; or, Psycho-Therapeutics. By C. Lloyd Tuckey, M.D. 7th ed. With a chapter on Treatment by Suggestion During the War, by A. P. Allan, M.D. Pp. 413. 21*s.*
Advanced Suggestion (Neuro-induction). By Haydn Brown, L.R.C.P., &c. 2nd ed. Pp. 402. 10*s.* 6*d.*

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.
The Diagnosis and Treatment of Intussusception. By C. P. B. Clubbe, L.R.C.P., M.R.C.S. 2nd ed. Pp. 92. 7*s.* 6*d.*

GREEN, W., AND SONS, Edinburgh.
Veterinary Hygiene. By R. G. Linton, M.R.C.V.S. Pp. 429. 26*s.*

HEINEMANN, WILLIAM, London.
Diathermy: Its Production and Uses in Medicine and Surgery. By E. P. Cumberbatch, B.M. Pp. 193. 21*s.*

LEWIS, H. K., AND CO., London.
The Clinical Examination of Diseases of the Lungs. By E. M. Brockbank, M.D., and A. Ramsbottom, M.D. Pp. 88. 4*s.* 6*d.*
Clinical Bacteriology and Hæmatology for Practitioners. By W. D'E. Emery, M.D. 6th ed. Pp. 310. 15*s.*
The Form and Functions of the Central Nervous System. By F. Tilney, M.D., and H. A. Riley, M.D. Foreword by G. S. Huntington, M.D. Pp. 1020. £3 10*s.*

LIPPINCOTT, J. B., COMPANY, London and Philadelphia.
Quick Reference Book for Medicine and Surgery. By G. E. Rehberger, M.D. 63*s.*

MACMILLAN AND CO., London and New York.
Dermatology: The Essentials of Cutaneous Medicine. By W. J. Highman, M.D. Pp. 482. 32*s.*

STOCKWELL, ARTHUR H., London.
The MacDonald Trio. Pp. 76. 3*s.* 6*d.*

Medical News.

UNIVERSITY OF OXFORD: *Radcliffe Travelling Fellowship.*—The Master and Fellows of University College announce that the Radcliffe Trustees have elected Tom Sydney Nelson, M.A., B.M., University College, to a Radcliffe Travelling Fellowship of £200 for three years.

Radcliffe Prize, 1921.—The Master and Fellows of University College have awarded a Radcliffe Prize of £50 to Edward Palmer Poulton, M.A., D.M., F.R.C.P., Balliol College, for his researches in physiology and pathology.

UNIVERSITY OF MANCHESTER.—At examinations held recently the following candidates were successful:—

THIRD M.B., CH.B. EXAMINATION.

General Pathology and Morbid Anatomy.—Elsie C. Begg, Lionel Boyars, F. W. W. Fox, E. S. Frischmann, Richard Handley, Mary Kent, C. B. Kirkbride, G. A. Lord, Greta Lowe, G. L. Meachim, A. A. Pomfret, Eleanor P. Smith, J. H. Struthers, and C. B. V. Walker.

DIPLOMA IN PUBLIC HEALTH.

Marion Draper and J. H. Sheldon.

UNIVERSITY OF DURHAM: FACULTY OF MEDICINE.—At examinations recently held the following candidates were successful:—

THIRD EXAMINATION FOR DEGREES OF M.B., B.CH.

Materia Medica, Pharmacology and Pharmacy, Public Health, Medical Jurisprudence, Pathology and Elementary Bacteriology.—John N. Alexander, Florence Bentham, Robert W. Locke, George C. E. Reffell, Charles A. Wilson, Eleanor Hilda Wylam, and Ella Lees Young.

THIRD EXAMINATION FOR LICENCE IN DENTAL SURGERY.

Anatomy, Physiology, and Histology, Dental Anatomy, Dental Histology, and Dental Materia Medica.—William A. Cowden, Selby Hutson, Eric W. Manners (honours, second class), Robert H. Reay (honours, second class), John N. Slack, James W. Vasey, and Gladwyn Williams.

QUEEN'S UNIVERSITY OF BELFAST.—At the graduation ceremony held on March 19th the following degrees were conferred:—

M.D.—James Donnelly and Frederick Hopkins.

M.B., B.Ch., B.A.O.—With honours: First class: John A. Smyth. Second class: Eileen O. Bartley and Samuel A. Thompson.

Pass: John Black, Sloan M. Bolton, John W. Bradbury, Henrietta Bradshaw, Patrick P. Connolly, Maurice Emery, James English, James Gaussen, Edward M. Hadden, Henry Harris, Stanley M. Kirk, David Loughridge, Robert J. McMullan, Beattie McNeill, Alexander McSparran, Edward C. Patterson, John Patton, John D. Reynolds, William J. Simpson, Arthur C. Sinclair, Kathleen R. Snodgrass, and John Young.

Diploma in Public Health.—Joseph M. Clearkin, John H. Davison, James W. Kernohan, Olga R. I. Love, John A. Martin, Grahame Patton, William Saunderson, Robert L. Sinclair, and Samuel J. Stewart.

SOCIETY FOR THE STUDY OF INEBRIETY.—The annual meeting of the society will he held at the Medical Society of London, 11, Chandos-street, London, W., on Tuesday, April 12th, at 4 P.M., when Dr. H. H. Dale, F.R.S., will open a discussion on the Use of Alcohol in Medicine.

PANEL NURSES.—At a recent meeting at the offices of the Leicester Insurance Committee of representatives of Approved Societies a scheme of nursing for the city of Leicester was discussed. Twenty societies, including friendly and industrial societies and trade unions, were represented. The subjects considered included the advisability of using the accumulated funds of the Approved Societies to add nursing to the benefits already enjoyed by the insured, and the possibility of using the District Nursing Association in this connexion. It was suggested that under the care of trained nurses patients would often recover more quickly and that the funds of the Approved Societies would in the long run benefit. The following resolution was passed:—

"That this meeting of representatives of Approved Societies heartily supports the idea of a scheme of nursing for the city of Leicester, and agrees that a representative committee be appointed to formulate such a scheme and report to a future meeting of representatives of societies."

Discussion also arose at a meeting of the Preston Insurance Committee on the question of provision for the nursing of insured patients. In this case a nursing centre was proposed, to provide which the societies might be asked to pay 3*d.* per member per year. Fifteen nurses was the number suggested. One member of the Committee, in welcoming the scheme, rejoiced to hear that the intention was to appoint nurses who would nurse and not simply nurses who went about inspecting. It was decided, after discussion, to circularise the Approved Societies in the borough having over 100 members to ascertain whether they were in sympathy with a scheme for nursing insured persons and would be prepared to contribute a few pence (say 3*d.*) per member per year in case such an organisation was formed in Preston.

CONGRÈS INTERNATIONAL DE MÉDECINE ET DE PHARMACIE MILITAIRES.—This congress, organised by the Service de Santé de l'Armée Belge, will be held at Brussels from July 15th to the 20th, under the presidency of Dr. Wibin, Inspecteur-Général du Service de Santé de l'Armée. The subjects to be discussed include the general organisation of the health services of armies and their proper relation to the Red Cross, the clinical and therapeutic study of poisonous gases used in warfare, the struggle against tuberculosis and venereal diseases in armies, the treatment of fractured limbs, and the purification of drinking water. Communications on any of these subjects should be written in French, English, or Italian, and should be sent before May 1st to the Secretariat Général du Congrès, Hôpital Militaire de Liège (Belgique). The fee for the congress is 25 Belgian francs.

LIVERPOOL DISPENSARIES.—The annual meeting of subscribers to the Liverpool Dispensaries was held at the Town Hall last week. Mr. S. Mason Hutchinson, the President, stated that for some years the dispensaries had been making a charge for treatment. Originally it was 1*d.*, now it was 3*d.* Most of the patients were able to pay this higher charge, and paid it willingly. The committee did not encourage those patients to come to the dispensaries who could pay for private medical attendance. The total number of patients in 1920 was 26,590, against 25,253 in 1919 and 29,964 in 1918. The medical officer of health had acknowledged the important part played by the dispensaries in the early recognition of infectious diseases—531 cases having been notified during the year. Attached to the North Dispensary there was now a school and infant clinic which was doing very valuable work. The treasurer's report showed a deficit on the year's working of £248, and at the end of the year there was a bank overdraft of £1874. The Lord Mayor moved the adoption of the reports, and stated that the fact that the patients paid what they did was an indication that they recognised the beneficent character of the work carried on by the dispensaries. Dr. A. A. Mussen, assistant M.O.H., stated that the Infant Welfare Centre had been attended during the year by close on 3000 people. The work was preventive, and he was sure that the education given to the mothers did much to reduce the infant mortality in the district. At the children's clinic during the past four years over 4000 cases of operation for tonsils and adenoids had been dealt with without mishap.

ROYAL MEDICAL BENEVOLENT FUND.—At the meeting of the committee held on March 8th 17 cases were considered, and £175 voted to 14 applicants. The following is a summary of some of the cases relieved:—

Widow, aged 60, of M.R.C.S., who practised in Essex and died in February, 1921. Applicant's husband had been unable to practise for some time owing to failing eyesight and old age, and the small amount of £60 left at his death from the practice was much reduced by funeral expenses and debts. The widow's sole income is £37 10*s.* interest on her own money invested in War Bonds, and at present her rent and rates amount to £32 per annum. Voted £18 in 12 instalments.—Daughter, aged 49, of M.R.C.S., surgeon at a London hospital and died in 1873. Applicant was operated on in June, 1920, and since has been living on her small savings and cannot possibly return to nursing, her profession, for some considerable time. She asks for temporary assistance whilst incapacitated. Voted £10 in 2 instalments.—Widow, aged 57, of M.R.C.S. who practised at Great Yarmouth and died in 1920. Owing to her husband's indifferent health and a number of bad debts applicant found herself very badly off and has been trying to support herself by temporary employment, and with the help of friends has managed to pay her way, but now asks the Fund to help her as her health has broken down. Voted £18 in 12 instalments.—Widow, aged 44, of L.R.C.P. & S. who practised in Yorkshire and died in 1918. Applicant was left with two children totally unprovided for and asks assistance towards the education of the children. Applicant's father-in-law makes her an allowance, but this help may cease at any time; she augments this by letting apartments. Help has been given by the Irish Medical Benevolent Fund and the Professional Classes War Relief Council. Her rent is £48 per annum. Voted £2 and referred to R.M.B.F. Guild for education grant.—Daughter, aged 70, of M.R.C.S. who held a commission in the R.A.M.C. and was a resident medical officer in London later. Owing to loss of income applicant finds it hard to maintain herself and help an invalid brother on a very limited income, derived from an allowance from the War Office, of £32 per annum, and an allowance from a sister of £20. She has rooms free on condition that her income is not less than £40 per annum. As she is too old to work she appeals to the Fund to help her. Voted £10.—Daughter, aged 65, of M.D. Lond. who practised at Notting Hill and died in 1885 Applicant has supported herself by needlework, but owing to advancing years and failing eyesight cannot do the amount of work necessary to pay her way. The amount she now earns is about 18*s.* per week and her rent is 4*s.* per week. The Fund rendered assistance to the applicant's sister some time ago, but she is now in the infirmary. Voted £12 in 12 instalments.—Daughter, aged 50, of M.R.C.S. who practised at Wigan and died in 1870. Three sisters live together in one room, one an invalid. Applicant made about £50 this year at nursing, but owing to ill-health has applied to the Fund for assistance. The rent of the room is 16*s.* per week. Voted £18 in 12 instalments.

Subscriptions may be sent to the honorary treasurer, Sir Charters J. Symonds, K.B.E., at 11, Chandos-street. Cavendish-square, London, W.1.

RED CROSS ENTENTE.—In a letter to the *Journal de Genève* of March 17th, Sir David Henderson, director-general of the League of Red Cross Societies, states that a satisfactory understanding has now been reached between the League and the International Red Cross Committee. This arrangement, which only awaits formal sanction, will result in useful collaboration, and place the Red Cross symbol out of reach of petty rivalry.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An extraordinary comitia was held on March 21st, Sir Norman Moore, the President, being in the chair. The President delivered the annual address and read eloquent obituary notices of the seven Fellows deceased during the past year—viz., Dr. M. Handfield-Jones, Dr. Philip John Hensley, Dr. David Lloyd Roberts, Dr. William Murray, Sir Frederick Taylor, Dr. William Odling, and Sir Felix Semon. Sir Norman Moore was then re-elected President. Licence to practice was granted to Evelyn Francis Bebbington, of Liverpool University.

PRESENTATION TO A MEDICAL MAN.—Dr. Alexander Stookes, senior surgeon to the Samaritan Hospital for Women, Liverpool, and one of the physicians to the Maternity Hospital, Liverpool, was entertained to dinner at the University Club on March 19th by his colleagues and friends on the occasion of his retirement. Professor Henry Briggs presided, and was supported by Mr. Rankine (chairman of the Maternity Hospital), Miss F. Ivens, M.S., Dr. T. R. Bradshaw, Professor L. R. Wilberforce, Dr. Blair Bell, and Mr. T. H. Bickerton. The company included the matrons of the Maternity and the Samaritan Hospitals. The toast of the "Guest of the Evening" was proposed by Mr. Rankine and supported by Dr. Bradshaw. Professor Briggs then presented Dr. Stookes with a substantial cheque. Dr. Stookes delivered a speech full of pleasant reminiscences of Liverpool 30 and 40 years ago, and thanked his friends in cordial terms for the honour they had done him. In the course of the evening speeches, paying tribute to Dr. Stookes as a surgeon and a man of many interests, were delivered by Miss Ivens, Professor Wilberforce, Mr. Bickerton, Dr. Blair Bell, and Dr. Glynn Whittle.

THE POSITION OF POOR-LAW MEDICAL OFFICERS. In the impasse that exists in the greater part of Ireland between local authorities and the Local Government Board the officers of the local authorities find themselves in a peculiarly difficult position. In most cases these officers are appointed by the local authority, subject to the approval of the Local Government, are paid by the local authority, and cannot be dismissed without the authority of the Local Government Board, which itself has the power of dismissal under sealed order. In the case of medical officers a small fraction of their salaries was contributed from central funds, but where the local boards have repudiated the authority of the Local Government Board these contributions are not paid and the entire burden of the salaries falls on the ratepayers. A medical officer, therefore, finds himself in the curious position of being paid by one body while holding his office at the pleasure of another. To add to his difficulty, these bodies issue contradictory orders and each expects his obedience. A Poor-law medical officer is bound to make certain returns to the Local Government Board. Certain local boards have forbidden their officers to make any such returns. The Local Government Board has retorted by threatening those who do not make returns with dismissal. A medical officer in such circumstances must either obey the Local Government Board and forfeit his salary or obey the guardians and be dismissed from his office.

NATIONAL LEAGUE FOR HEALTH, MATERNITY AND CHILD WELFARE.—An English-speaking Conference on Infant Welfare will be held at the Kingsway Hall, Kingsway, London, W.C., on July 5th, 6th, and 7th, Lord Astor in the chair, under the patronage of the Minister of Health. The main subjects to be discussed are (1) residential provision for mothers and babies; (2) inheritance and environment as factors in racial health; (3) the supply of milk, its physiological and economic aspects. Papers will be submitted by a number of authorities from all parts of the world, whose names will be announced in the detailed programme which will shortly be available. Throughout the Conference a mothercraft exhibition will be open from 11 A.M. to 9 P.M., at which the main features will consist of practical demonstrations in important matters relating to infant care. For the benefit of infant welfare workers of all kinds lectures will be given every evening during the Conference on (1) the Ideal Maternity and Child Welfare Centre; (2) Common Infections in Mother and Child; (3) the Tuberculous Mother and her Infant; (4) the Syphilitic Mother and her Infant; (5) the Accessory Factors in Infant Feeding; (6) the Psychology of the Mother and her Child. The Conference fee, including admission to the exhibition and to the evening lectures, the right to receive proofs of the papers to be read, and a copy of the report of the proceedings when published, has been fixed at £1 1*s.* per member, and tickets for various parts of the Conference can be had at various prices. Further particulars and tickets can be obtained from Miss Halford, 4 and 5, Tavistock-square, London, W.C.1.

ROYAL PORTSMOUTH HOSPITAL.—The annual meeting of this hospital was held at the Town Hall, Portsmouth, on March 22nd. The report stated that 13,596 patients had been treated during the year, compared with 12,062 in 1919. The average cost per bed occupied was £119 5*s.* 9*d.*, against £115 2*s.* 4*d.* in 1919. The ordinary income last year amounted to £15,178—a record amount—against £10,531 in 1919. The annual subscriptions showed an increase of £1204 (£3818 against £2614), and the employees and box collections the splendid increase of £4204 (£4562 as against £358). The mayor has raised towards the deficit on maintenance account the sum of £3150. Legacies amounted to £485. The venereal diseases department had a successful year's working. 1004 new patients attended, and the total number of attendances was 23,674, an increase of 3827 over the figure for 1919. More accommodation being needed, the Portsmouth Corporation has constructed a temporary building for male patients. There are now six beds for female patients and five for male patients. A gratifying feature has been the increase in the number of patients who have come in the early stages of their disease.

Obituary.

WILLIAM IRONSIDE BRUCE, M.D. ABERD.,

PHYSICIAN TO THE X RAY AND ELECTRICAL DEPARTMENTS, CHARING CROSS HOSPITAL.

Dr. William Ironside Bruce died at his residence in London on Monday, March 21st, after a severe and distressing illness of about two months' duration. His early death has cut short a career of good service and much usefulness, and his loss will be greatly felt by many members of the medical profession, and is especially lamented by Charing Cross Hospital and its medical school.

William Ironside Bruce was the second son of the late Dr. William Bruce, of Dingwall, and a nephew of Dr. J. Mitchell Bruce. He was born at Dingwall and was educated at the University of Aberdeen, where he obtained the degrees of M.B. and Ch.B. in 1900, and then took service as civil surgeon in the South African Field Force. While in South Africa he took much interest in the early application of X rays for the diagnosis of war injuries, and when it became necessary to appoint an assistant to the late Sir J. Mackenzie Davidson at Charing Cross Hospital he was selected for this post. He remained in the service of Charing Cross Hospital to the time of his death and became responsible for an exceedingly efficient X ray department.

Ironside Bruce was intensely interested in the scientific developments of his subject, and especially in its practical application to the diagnosis and treatment of disease. The whole of his later work was built on a good foundation, as is evidenced by the publication in the early part of his career of his "System of Radiography with Atlas of the Normal." He was a good teacher—many now engaged in the practice of radiography owe much to his instruction—and was always prompt in service to his professional brethren. With a very complete knowledge of his subject he had a sound and increasing acquaintance with general medicine and surgery. In process of time he became President of the Section of Radiology in the Royal Society of Medicine, and took much interest in the establishment of the special diploma in this subject, now given by the University of Cambridge.

For some months the condition of his health had given anxiety, and at the beginning of the year he was persuaded to take a prolonged holiday. Shortly it was found that his illness was serious, when blood examination established the diagnosis of the severest type of aplastic anæmia and from this he died. Evidence now accumulating, that this condition can be caused by the effects produced on the blood-forming structures of the body by the more penetrating radiations both from X ray tubes and from radium, renders it almost certain that he succumbed as the result of his continuous and enthusiastic work in the subject of his choice.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BROWNLIE, W. B., M.D. Glasg., has been appointed one of the Medical Referees under the Workmen's Compensation Act for County Court Circuit No. 4.

MCDOWELL, R. J. S., M.B., Ch.B., to be Lecturer in Experimental Physiology and Experimental Pharmacology at the University of Leeds.

PINHEY, E. T., M.B., Ch.M. Sydney, Medical Officer of the City of London Union.

WHITEHEAD, H., M.D. Manch., D.P.H., Medical Officer of Health for Wigan.

University College Hospital: KANE, M. H. K., and BLAKE, J. C., M.R.C.S., L.R.C.P. Lond., House Physicians; BUTCHER, T. A., M.R.C.S., L.R.C.P. Lond., House Surgeon; KIRTON, C. A., Obstetric Assistant; EADES, R. O., Casualty Surgical Officer; SCANTLEBURY, G. C., Assistant in Ear, Nose, and Throat Department.

Vacancies.

For further information refer to the advertisement columns.

Birmingham General Hospital.—Asst. Visit. Anæsth. £50. Res. Anæsth., H.S., £100 each. H.S. to Skin and Venereal Depts. £125. Cas. H.S. £100.

Birmingham, Rubery Hill and Hollymoor Mental Hospital.—Jun. Asst. M.O. £400.

Brighton, Royal Alexandra Hospital for Sick Children, 10, Dyke-road.—Hon. P. and Hon. Asst. S.

Bristol General Hospital.—H.S. £175.

Central London Ophthalmic Hospital, Judd-street, W.C.—Path. £75.

Charing Cross Hospital, Agar-street, W.C.—Surg. Registrar. £150.

Denbigh Mental Hospital.—Jun. Asst. M.O.—£400.

Dewsbury County Borough.—Asst. Sch. M.O. and Asst. M.O.H. £500.

Dumfries, Crichton Royal Mental Hospital.—Clin. Path. £400.

Ealing Borough.—Asst. M.O.H. £500.

Eastbourne, Princess Alice Hospital.—H.S. £175.

Gloucester County Asylum.—Jun. Asst. M.O. £300.

Greenwich, "Dreadnought" Hospital.—H.S. £150.

Guildford, Royal Surrey County Hospital.—H.S. £150.

Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—Res. Asst. M.O. £200. Also H.P. £50.

Hospital for Sick Children, Great Ormond-street, London, W.C.—Asst. Cas. M.O., H.S., and H.P. £50 each.

Huddersfield Royal Infirmary.—Two Jun. H.S.'s. £150.

Lincoln County Hospital.—Jun. H.S.—£150.

London Lock Hospital, 91, Dean-street, W.—Pathologist. £500.

Maidstone, Kent County Ophthalmic Hospital for Diseases of the Eye, Ear, Nose, and Throat.—H.S. £300.

Manchester, Ancoats Hospital, Mill-street.—Med. Registrar and Surg. Registrar. £100 each. Res. Surg. O. £250. Res. H.P. £200. Anæsth. 10*s.* 6*d.* per attendance. Also Female M.O.

Manchester Children's Hospital, Gartside-street.—Asst. M.O. £200.

Manchester County Asylum, Prestwich.—Asst. M.O. £572 18*s.*

Manchester, Crumpsall Institution and Infirmary, Crescent-road.—Res. Asst. M.O. £300.

Manchester Royal Infirmary and Dispensary.—Two Hon. Asst. P.'s.

National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—H.P. £150. Asst. P.

Newcastle-upon-Tyne, City Mental Hospital, Gosforth.—Jun. Asst. M.O. £400.

Norfolk Education Committee.—Asst. Sch. M.O. £500.

Northampton General Hospital.—H.S. £200.

North Riding of Yorkshire County Council.—Tuberc. O. £700.

Nottingham, Bagthorpe Institution and Infirmary.—Res. Asst. M.O. £300.

Nottingham City Asylum.—Sec. Asst. M.O. £400.

Oldham Royal Infirmary.—H.S. £200.

Paddington Green Children's Hospital, London, W.—H.P. £150. H.S. £150.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Cas. H.S., Asst. Cas. O., and H.P.'s. £100.

Reading, Royal Berkshire Hospital.—Second H.S. £200.

Rochester, Kent, St. Bartholomew's Hospital.—Jun. Res. M.O. £200.

Rotherham Hospital.—Jun. H.S. £150.

Royal Eye Hospital, St. George's-circus, Southwark, S.E.—Sen. and Jun. H.S.'s. £100 and £70. Also Clin. Assts.

Ryde, Royal Isle of Wight County Hospital.—Vacancy on Hon. Med. Staff.

Salford Royal Hospital.—H.S.'s, and Cas. H.S. £150.

Sheffield, East End Branch of the Children's Hospital.—H.S. £150.

Sheffield Royal Hospital.—H.S. and Asst. Cas. O. £150.

Sheffield Royal Infirmary.—H.S. £150.

Southampton Free Eye Hospital,—Asst. Hon. Ophth. Surg.

Swansea County Borough.—Asst. M.O. £500.

Tiverton Hospital.—H.S. £100.

Wakefield, Clayton Hospital.—Sen. H.S. and Jun. H.S. £250 and £200.

Wandsworth Union, St. James' Infirmary, Ously-road, Balham, S.W.—Two Jun. Asst. M.O.'s. £300.

Wolverhampton and Midland Counties Eye Infirmary.—H.S. £200.

Wolverhampton and Staffordshire General Hospital.—Hon. Spec. for Ear, Nose, and Throat Dept. Also Res. Cas. *S.* £300.

Worcester County and City Mental Hospital, Powick.—Sen. Asst. M.O. £450.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Canterbury.

Births, Marriages, and Deaths.

BIRTHS.

DONNELL.—On March 20th, at Hinckley, Leicestershire, the wife of J. H. Donnell, M.B., B.C. Cantab., of a daughter.

HAMILL.—On March 21st, at Weymouth-street, W., the wife of P. Hamill, M.D., D.Sc., F.R.C.P., of a daughter.

MANSON-BAHR.—On March 17th, at Weymouth-street, W., the wife of Dr. Manson-Bahr of a daughter.

PARIS.—On March 14th, at Wimbledon, the wife of Major R. C. Paris, R.A.M.C., of a daughter.

RUDKIN.—On March 15th, at Devonshire-street, the wife of G. W. R. Rudkin, M.C., M.R.C.S., L.R.C.P., of a daughter.

MARRIAGES.

ANDERSON—HOOD.—On March 18th, at St. Columba's (Church of Scotland), Pont-street, S.W., the marriage of Major H. Graeme Anderson, M.D., F.R.C.S., R.A.F., of 75, Harley-street, W., to Gladys, elder daughter of Charles Hood, of Hatch End, Middlesex.

DAWSON—PARKINS.—On March 17th, at St. Clement's Church, Ilford, Ernest Archibald Dawson, L.D.S. R.C.S. Eng., to Dorothy Florence, only daughter of Mr. and Mrs. G. Parkins, of Holcombe-road, Ilford.

FORDYCE—WADDELL.—On March 15th, at the Scottish National Church, Crown-court, London, Captain A. Russell Fordyce, R.A.M.C., to Mary, younger daughter of the late James Waddell, Solicitor, Earlsferry, and Mrs. Waddell, Earlslea, Earlsferry.

LEEMAN—MACGREGOR.—On March 16th, at South Kensington Presbyterian Church, Percival Garmany Leeman, M.C., M.D., to Clara Grace Ellen, only daughter of Mr. Robert MacGregor, London, formerly of South Africa.

DEATHS.

CUMMING.—On March 14th, at the 3rd British General Hospital, Basra, Captain Robert Scott Cumming, M.C., R.A.M.C., aged 27.

DE BRENT.—On March 16th, Mortimer John De Brent, M.R.C.S., Victoria-road, Clapham Common.

KAY.—On March 11th (suddenly), at The Grove, Starbeck, Harrogate, Elizabeth Mary, wife of Walter Smith Kay, M.D., formerly Medical Superintendent of West Riding Asylum, Wadsley, Sheffield.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Friday, April 1st.

SECTION OF LARYNGOLOGY: at 4.45 P.M. (Cases at 4 P.M.)

Epidiascope Demonstration:

Mr. Archer Ryland will give an Epidiascope Demonstration of a Pharyngeal Pouch, dated 1760 A.D.

Cases and Specimens will be shown by—

Mr. G. W. Dawson, Mr. C. W. M. Hope, and others.

SECTION OF ANÆSTHETICS: at 8.30 P.M.

Paper:

Dr. R. L. Mackenzie Wallis and Dr. C. Langton Hewer: A New General Anæsthetic—its Theory and Practice.

Monday, April 4th.

SECTION OF TROPICAL DISEASES AND PARASITOLOGY: at 8.30 P.M.

Papers:

Dr. W. Broughton-Alcock: Laboratory Observations on Pensioners who contracted Malaria in the late War.

Dr. H. C. Lucey: Observations bearing on the Reliability of the Large Mononuclear Leucocyte Count as an Aid to the Diagnosis of Malaria.

Tuesday, April 5th.

SECTION OF SURGERY: SUBSECTION OF ORTHOPÆDICS: at 5.30 P.M. (Cases at 5 P.M.)

Cases: The following will be shown by—

Mr. Laming Evans (President): (1) Bilateral Synostosis of Radius and Ulna Associated with Bilateral Congenital Dislocation of the Hip; (2) Multiple Cartilaginous Exostoses Associated with Congenital Dislocation of the Hip.

Mr. A. W. Sheen: (1) Finger Joint Injury; (2) Autogenous Graft into Musculo-spiral Nerve.

Mr. H. A. T. Fairbank: Habitual Subluxation of Both Shoulders and Snapping of Both Hips, Associated with Unilateral Congenital Dislocation of the Hip.

Mr. A. H. Todd: (1) Chronic Arthritis of Knee in a Syphilitic Boy; (2) Tuberculous Disease of the Carpus in a Boy aged 9½ Years.

SECTION OF PATHOLOGY, at the Institute of Pathology, Charing Cross Hospital Medical School: at 8.30 P.M.

Mr. W. S. Cole and Dr. W. J. Adie: The Quantitative Analysis of the Gastric Contents.

Mr. W. S. Cole and Miss J. Aynton: Observations on Post-operative Ketosis.

Mr. J. E. Barnard: A Method of Demonstrating the Structure of Bacteria.
Dr. A. B. Rosher: The Agglutinins Present in Normal Sera for B. Enteritidis (Gaertner) and for Bacilli of the B. Suipestifer Group.
Dr. G. S. Wilson: Some Points in the Technique of Counting Viable Bacteria.
Dr. H. B. Weir and Dr. W. J. Adie: (1) Infarct of Spleen, followed by Rupture and Hæmorrhage; (2) Gumma of Heart with Hæmorrhage Causing Acute Heart-block.
Dr. W. W. C. Topley, Mr. J. E. Barnard, and Dr. G. S. Wilson: A New Technique for Obtaining Bacterial Cultures from a Single Cell.
Dr. W. W. C. Topley and Dr. H. B. Weir: Demonstration of the Lesions Found in Some Epidemic Diseases of Mice.
Dr. W. W. C. Topley: The Relation of B. Enteritidis (Gaertner) to Bacilli of the B. Suipestifer Group.

Friday, April 8th.

CLINICAL SECTION: at 5.30 P.M. (Cases at 5 P.M.)

Papers:

Dr. Ivor Davies: Hair Ball or Hair Cast of the Stomach and Gastro-intestinal Tract. A Report of Two Cases, with Specimens, and an Abstract of 108 Cases from the Literature.
Dr. M. Cassidy: Report *re* Case of Neoplasm of Lung.

Cases:

Mr. C. Gordon Bryan: Case of Osteitis Fibrosa, Treated by Resection of Four Inches of Humerus and Insertion of Boiled Beef Bone Graft.
Mr. Massie: Osteoma of Frontal Bone.
Mr. R. P. Rowlands: Two Cases of Jejunal Ulcer.
Other cases will be shown.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

TUESDAY, March 29th.—10 A.M., Dr. McDougal: Electrical Department. 2 P.M., Mr. T. Gray: Surgical Out-patients. Mr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Skin Department. 2.30 P.M., Mr. Addison: Visit to Surgical Wards.

WEDNESDAY.—10 A.M., Mr. MacDonald: Genito-Urinary Department. 2 P.M., Mr. Sinclair: Surgical Out-patients. Mr. Gibb: Eye Department. Mr. D. Armour: Visit to Surgical Wards. Dr. Morton: X Ray Department.

THURSDAY.—2 P.M., Dr. S. Pinchin: Medical Out-patients. Mr. Baldwin: Orthopædic Department. Mr. B. Harman: Eye Department. 2.30 P.M., Dr. A. Saunders: Visit to Medical Wards.

FRIDAY.—2 P.M., Dr. Burnford: Medical Out-patients. 2.30 P.M., Dr. Pritchard: Visit to Medical Wards. Mr. Baldwin: Operations.

SATURDAY.—10 A.M., Dr. A. Saunders: Medical Diseases of Children. 2 P.M., Dr. Owen: Medical Out-patients.

Daily:—10 A.M. Ward Visits. 2 P.M., In-patient, Out-patient Clinics and Operations.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

THURSDAY, March 31st.—6 P.M., Chesterfield Lecture:—Dr. W. Griffith: The Bullous Eruptions.

Communications, Letters, &c., to the Editor have been received from—

A.—*Answers*, Lond., Editor of; Dr. T. Adam, Stirling.
B.—Dr. C. W. G. Bryan, Lond.; Dr. H. W. Bayly, Lond.
C.—Dr. B. H. Cole, Lond.; Central Midwives Board, Lond.; Dr. R. Craik, Lond.; Prof. E. L. Collis, Cardiff; Children's Country Holidays Fund, Lond.; Mr. A. Cooke, Cambridge; Chelsea Hospital for Women, Lond.
D.—Dr. E. Drybrough-Smith, Shebbear; Mr. A. Daly, Lond.; Dr. S. Delépine, Manchester.
E.—Dr. C. L. Evans, Lond.; Mr. W. Edmunds, Lond.
F.—Dr. W. E. Falconar, Lond.
G.—Mr. R. G. Guyer, Edinburgh; Sir H. J. Gauvain, Alton; Great Northern Central Hospital, Lond.; Dr. M. Grabham, Madeira.
H.—Mr. E. Hughes, Liverpool; Dr. G. Hirsch, Halberstadt.
I.—Dr. Abd-el-Aziz Ismail, Cairo.
K.—Mr. G. Keynes, Lond.; King's College Hospital, Lond., Sec. of.
L.—Leicestershire, County Medical Officer of; London and Counties Medical Protection Society, Gen. Sec. of; London Hospital Medical College, Sec. of; Dr. F. Langmead, Lond.; Mr. E. M. Little, Lond.; Dr. G. C. Low, Lond.
M.—Ministry of Pensions, Lond.; Sir J. Mackenzie, St. Andrews; Dr. T. W. Mitchell, Tonbridge; Ministry of Health, Lond.; Manchester and District Radium Institute; Major W. G. MacPhearson, Lond.; Dr. R. W. MacKenna, Liverpool; Dr. J. Matthew, Lond.; Mr. S. A. Mann, Lond.
P.—Mr. H. Platt, Lond.; Panel Committee for the County of London; Dr. A. E. H. Pinch, Lond.
Q.—Queen's University, Belfast, Sec. of.
R.—Mr. H. Rundle, Southsea; Mr. P. B. Roth, Lond.; Royal Society, Lond.; *Rivista Ospedaliera*, Rome, Editor of.
S.—Mr. N. F. Sinclair, Lond.; Dr. G. Steele-Perkins, Lond.; Société des Sciences Médicales et Biologiques de Montpellier; Scottish Board of Health, Edinburgh; Verlagsbuchhandlung J. Springer, Berlin; Mr. A. Saunders.
T.—Mr. W. H. Trethowan, Lond.
W.—Dr. D. Walsh, Lond.; War Office, Lond., Publicity Dept. of; Messrs. Williams and Wilkins Co., Baltimore; West London Post-Graduate College; Dr. J. D. Wynne, Norwich; Mr. H. Woolf, Le Havre; Dr. W. H. Willcox, Lond.; Dr. L. Williams, Lond.

Communications relating to the editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C. 2.

Notes, Short Comments, and Answers to Correspondents.

THE IDEAL ELEMENT IN MEDICINE, ILLUSTRATED BY THE LIFE OF JOHN HUNTER.

BY H. H. BASHFORD, M.D., B.S. LOND.

(*Concluded from p. 626.*)

The Growth of Medical Power.

EVEN with the picture before us of the position of Medicine in the year of Hunter's birth it is perhaps doubtful whether we have any of us quite realised how great that stride has been. In a world that every year is drawing its peoples closer, so that New York to-day has become nearer to London than was Hunter's Glasgow, in a world in which we now know the poet's phrase to be literally true that we cannot pluck a flower without troubling of a star, surely no other art commands such faith or wields so various a power. Upon the word of no other artist can an express train or an Atlantic liner be held up, the processes of law be delayed, or the engines of industry silenced; and yet by universal consent, as Kipling has reminded us, a doctor's certificate can do all these things. Not only in the sick room and the hospital, but in the every-day life of the school and factory, in the building of houses and the planning of towns, the community of to-day demands his presence.

The Doctor as Priest.

Even as the generals of yesterday, planning a campaign, consulted the oracles before marching, so the doctor is now called upon for his technical advice. Such and such a valley is to be occupied, but the doctor prays down his microscope, and the general, listening to his results, sends his men by another route. You have perhaps seen it stated indeed, and with a good deal of truth, that the position of the doctor at the present moment is largely that of the mediæval priest, out of whose side, as it were, he sprang. Where rich men dying left in confidence much of their wealth to the great monasteries, they now bequeath it in equal faith to the various hospitals. That is a statement which Lord Knutsford, for instance, would probably require me to qualify. But it is surely true that the community of to-day does recognise in the hospitals the expression of a factor inseparable from all true worship in its deepest sense.

Even in the ethical domain itself we behold the sphere of the doctor daily widening. More and more what was accepted as sin is now legitimately perceived to have been but ignorance, or the fruit of ignorance in the shape of disease, ignorantly acquired or ignorantly unrecognised. In many dark regions of human experience, where men once crept in moral fear, they may now walk, knowing the nature of their handicap, at any rate free from this particular burden. What that has meant in the rolling back of unnecessary clouds from the human conscience, what it has amounted to in terms of mercy and mutual forbearance cannot be guessed. But the result has been this, that to-day it is the doctor who has become the world's confessor, and whom the world believes, rightly or wrongly, to have been the chief agent in this spiritual enfranchisement. Health, wholth, wholesomeness, holiness—more and more has the world come to perceive that they are only facets of the same great crystal.

A Responsible Inheritance.

Such, then, is the inheritance to which the student of Medicine finds himself called to-day—an inheritance of such power and prestige as none of his predecessors ever entered upon. But, if there is one thing more than another that history has to teach us, it is that these are the very conditions most dangerous to idealism. Movement after movement, æsthetic and religious, has died of its own material prosperity, has attracted the professional, or professionalised the idealist, and perished from fatty degeneration of the heart; and it might be well for us, just for a moment or two, to take stock of ourselves from this standpoint. With increasing frequency, for example, it is being openly alleged, not only that we are establishing a priestly tyranny, but that this art of ours is becoming commercialised and that we are forming ourselves into rings to tax the community. That is untrue, of course, but at the same time it is, perhaps, a danger to be guarded against. In common with everybody else we have been lately carried up by an exceptional wave of idealism into an atmosphere of self-sacrifice, from which an apparent ebbing was probably inevitable. I say "apparent" because I firmly believe that behind the new movements that we are witnessing, behind the formation in almost every country of group-relationships for group-bargaining, there is a sincere and honourable desire for a fairer and more joyous way of life.

The Artist Dare Not Strike.

But just at the moment the bargaining is uppermost, the superficial appearance is that of a general game of grab; and we have heard a good deal lately, and perhaps rightly, of the necessity for equipping ourselves to take part in it. There have even been whispers as to what might happen if the medical profession were to go on strike, and certain politicians have begun to discern in us a new and possibly convenient weapon. But these have surely forgotten that the artist can never strike, except at the price of self-destruction; and that the very existence, indeed, of a strike too often proclaims that the artist spirit has vanished. For the great majority, alas, the present phase of our industrial life has almost effected this. For the mass of men, each with a fraction, at least, of the desire of the artist burning within him, this has been stultified by a mechanical evolution that has robbed labour of its joy.

But for the doctor there is no such excuse, apart from the fact that he deals in life and death. That is probably true, of course, in the last analysis, of every brain and manual worker. But for us the issues are nakedly immediate. Personal suffering is our raw material. And to talk about striking becomes the sort of bluff, therefore, in which it is perilous for us to indulge. Superficially, no doubt, that is our weakness, but fundamentally it is our strength; and the realisation of it by the community at large—the realisation that there is one group, at least, to which this weapon is spiritually forbidden—may well have effects on the shaping of the world's future beyond our power to discern.

The Danger of an Expensive Curriculum.

Then, closely linked with this subject, there is another about which it might be fruitful for us to ponder. For Art, like childhood, knows no social distinction, a quality that it shares with the Kingdom of Heaven; and there is a certain danger of Medicine becoming the preserve of a particular social class. Hitherto its gates have stood more widely open, perhaps, than those of any other of the so-called learned professions. Paré was the apprentice of a country barber; Pasteur was the son of a provincial tanner. But with the increased length and necessarily increased cost, of the medical education, there would seem to be a danger that in future only the better-endowed will be able to undertake it. From all points of view that would be a misfortune, and for Medicine itself it would indeed be disastrous if the labourer's cottage and the village shop and the home of the poor country parson could no longer contribute to its service their Boerhaaves, Jenners, and Astley Coopers. For no art can afford to become class-conscious, and ours the least, perhaps, of any.

The Harley Street Area an Outworn Fetish.

Here in London, too, there is a distinct menace, I think, in the outworn fetish of Harley Street, in the crowding together, according to a convention, useful enough before motor-cars and telephones, of all the consultants and specialists into a congested central area. For that means an inflation, wholly artificial, of the mere cost of existence; and it often compels the best of our younger men, in their most vigorous years, to give up original research in the fierce struggle for an income. All of you must know such men—men who, as students, gave the fairest promise of enriching our stores of knowledge, but who have since become, through no fault of their own, merely able and mechanical money-getters. Then again in the country, not very often perhaps, but surely more often than should be the case, we have the spectacle of neighbouring practitioners living and working in professional enmity—regarding one another as rival tradesmen rather than as fellow-artists with a common ideal. You will even see a reflection of that in next week's LANCET, where there will almost certainly be an advertisement of some desirable country practice incurring no opposition within five miles. What happens at the five-mile limit you will mercifully be left to imagine. But surely as artists we might make an effort to drop this word from our vocabulary.

A Plea for the More Human Teaching of Medicine.

That is more than enough, however, of jeremiads. If the flame within be given plenty of fuel it will easily withstand the fleeting perils of any particular age or emergency. It is the fuel that matters; and there is no better fuel than the lively example of such men as Hunter. Among the many wise offices of a Church, to which we have referred, perhaps, a little too unkindly, none is wiser than the office known as the Communion of Saints. For after all it is only from each other and those who have gone before us that we catch our idealism; and that is why I should like to finish, if I may, with a plea for the more human teaching of Medicine. Thus the commemoration of our Sydenhams and Hunters should surely not be left to post-graduate societies. It should be part and parcel of the daily work in the theatre and dissecting-room. It is true, of course, that the medical student, beginning to explore the occupied territories, will find upon certain of the landmarks a memorial tablet in the way of a name. This is the circle of Willis, he will be told, or Nélaton's line, or Broca's area, or Stenson's duct. But how often does the demonstrator pause to tell him the personal story behind the label?

How easily this could be done, and with what fascinating and fertilising results, Professor Keith has recently shown us in his "Menders of the Maimed"—a volume that might well be the example of all future text-books and every teacher in the medical schools. What could be more thrilling, for instance, than his story of the discovery of the principle of vital staining, beginning as it does with the chance invitation, in the summer of 1736, to one John Belchier that he should share the supper of a certain calico-printer in the City of London. This calico-printer, as Professor Keith tells us, was a man of economical temperament, and used the madder-soaked bran from his dye-vats as food for his pigs. John Belchier, on the other hand, was evidently the possessor of a quality that has been well described by Mrs. Underhill as a hard-won innocence of eye. The consequence was that when the joint of pork, with which his host proposed to regale him, came to the table the young surgeon was immediately struck with the rosy colour of the bones. He made inquiries, perceived that he was in the presence of a new and important phenomenon, made experiments of his own by feeding his fowls on the same substance, and published his results a few months later in the Transactions of the Royal Society. For him that was an end of the matter. But for a certain French squire, Henri-Louis Duhamel, there were possibilities in Belchier's discovery that the young surgeon had not perceived. He proceeded, therefore, on his little estate, where he lived as a bachelor with his maiden sister, to confirm and extend the experiments of John Belchier. He did so, and discovered the further fact that it was only the new bone, deposited during the madder-feeding period, that took the stain, and hence he found in his hands a new and wonderful method for an exact study of the growth of bones.

Sylvius and Vesalius.

We cannot pursue the story—you are all probably familiar with it; but upon every bush in the medical landscape there are such stories ready for the plucking and for the enrichment of the student's everyday life. Where, in its way, for instance, is a story more symbolic than that of Sylvius and Vesalius? There is Vesalius, the young inquiring student, with the child's eye, to which I have already referred—the birthright of us all, but which most of us exchange, alas, in process of time for a mess of pottage, and only regain, if we regain it ever, after a long and arduous struggle. We see him as a mere boy at the University of Louvain, in the earlier years of the sixteenth century, creeping out stealthily by night to a place where criminals were executed, and, limb by limb, carrying home the remains of one of these until he has patiently assembled his first skeleton. Next we perceive him fired by all that he has heard of the great Jacques Dubois of Paris—Jacobus Sylvius, as he otherwise called himself, after a latinising custom of the middle centuries. He resolves to go and listen to him and learn from him, and spends an ardent year or two in Paris, absorbing with every faculty all that the great man can teach. Then, at 22, he is ready himself to step into a professorship at Padua. And then comes the break. For the great Sylvius, in spite of his own clear and individual outlook, is largely under the influence, from which he cannot free himself, of the illustrious Galen, whom he has so rightly resuscitated. Vesalius, on the other hand, refuses to accept without question any tradition, however great; and in his "System of Anatomy," published when he is 29—the chief corner-stone, perhaps, of modern anatomical teaching—both Sylvius and Galen are fearlessly thrown aside where he has found their conclusions unverifiable. The old master is hurt—it is the ancient story of clashing intellectual generations—and fiercely attacks, as does Eustachius, his daring, but unstoppable young disciple. Two or three sentences, you see, a minute or two's time, and, behind these mere dead names of the dissecting-room, there springs into life before the student's eyes the great company that went before him.

That is what I mean by a more human teaching. "We have learned this," we should be taught, "because young Waller found Kensington dull, while he waited for patients; and we know that, because Hunter discovered it, when he was 37 and desperately hard up." That may be dismissed, perhaps, by the pedant, as mere irrelevant story-telling. But every child loves a story; and it is only in so far as we preserve the child in us that we preserve the artist also. Perhaps that is the reason why the Founder of our religion so often took children for his text; or, if you would rather, why Nature so freely endows us with these disturbing young idealists. In the words of a young French poet, who was killed in the war, *C'est l'enfant qui est plein et l'homme qui est vide.* Youth is full, age is empty—

and though that is something, no doubt, of an overstatement, it is surely true that as doctors we owe the great inheritance of our art to those forerunners of ours who kept the child's eye and youth's untarnished ideals.

ONE ASPECT OF BIRTH CONTROL.

WE cannot claim that the average medical man has devoted much thought or care to the question of contraceptives, though their use is believed to be widespread, nor that he has made himself master of the arguments for and against their employment. An occasion may, however, arise in the career of any practitioner when he may be drawn into a discussion on the propriety of the artificial prevention of conception in certain given circumstances, or may be asked a definite question on the relative merits of various methods. A refusal to answer will drive the patient into hands less scrupulous and also perhaps less judicious. Without going into the racial aspect of popular instruction in contraceptive methods, or discussing the merits of the special methods favoured by Mrs. Marie Stopes, D.Sc., we must remark in passing that to advocate a method which enables one contracting party to prevent conception without the knowledge of the other is to raise difficulties of a far-reaching nature. We are here concerned with Mrs. Stopes's anticipation that a number of doctors and nurses will attend her newly established "Mother's Clinic"—surely an ambiguous title—as disciples. We think this unlikely, but on the other hand it must be remembered that no part of the medical curriculum deals adequately with the applied anatomy, physiology, and pathology of the reproductive system. In certain physiological text-books detailed consideration of this system is omitted; in others it is disposed of in a brief chapter. Few teachers discuss openly and clearly with students the genesis, the psycho-physiological significance—with due reference to reaction time in either sex—of the sexual orgasm. Later on the gynæcologist is more concerned with the retained products of conception than with its prevention, and the venereal expert with problems of infection rather than human and social problems. And yet not only the gynæcologist and the venereal expert, but the neurologist and the alienist are daily concerned with the end results of the sexual life of the patient. Not only the ethics of the control of parenthood, but the less undesirable methods of control should be familiar to the profession; the public is prepared to turn to the doctors for guidance, and it is not the fault of the public that doctors are ill-equipped to give it. Even the subjects of impotence and abortion are better understood, though chiefly from the medico-legal standpoint. But any qualified doctor should be placed in a position to inform first himself and then, at his discretion, his inquirer, firstly, of the arguments for and against contraceptives, and secondly, of the relative degree of nervous wreckage to be anticipated from the use of any one method.

THE STRUCTURE OF BONE.

THE last lecture of the Lent term at King's College was delivered by Professor E. Barclay-Smith on March 16th, his contribution to the "Problems of Modern Science" being on the structure of bone. Choosing as the subject of his discourse the femur, of which he showed a section on the screen, he demonstrated how admirably its tubular structure was fitted to resist stress and strain, and he illustrated the mechanism of fracture by a picture of a twig in the process of being broken. This tubular structure was extensively used by Nature in the building of the grasses of the plain, the birds of the air, and the beasts of the field, while man had made the discovery of its strength only yesterday, applying it to bridges and bicycles among other things. The lecturer pointed out that the anatomist had not begun to recognise until the latter part of the last century that the cancellous tissue at the ends of the bones was not arranged in any haphazard manner, but that it was adapted to withstand the stress imposed upon it by the weight of the body and the pull of the muscles. As showing how the wonderful strut and tie structure of the bone lattice-work had been adopted by man, Professor Barclay-Smith showed a photograph of the cranes, constructed on this principle, which are being used in building operations opposite to King's College and by a picture of the United States battleship *Tennessee*, which had its masts made of reticulated steel. But in both these applications the mechanism was cumbrous in comparison with that of the human body, and if the engineer would devote a little study to the original which Nature had provided he would acquire really valuable information.

The Builders of Bone.

Bone, he said, was a tissue which appears comparatively late in the building of the human body. In the thigh it was represented by a miniature cartilaginous model which soon commenced to thicken in the centre. "Before we are born death begins to lay its fingers upon us," said the lecturer, for as the cartilage thickened it died and was at once invaded by a host of cells which made their way in from without and which in the process of bone formation seemed to be engaged in three activities. First, the cells which might be called the excavators ate their way into the dying cartilage; then another set of cells which might be called the bone-builders at once began to lay down the bone, while a third set of cells were engaged in manufacturing a set of tubes which, while conveying the material with which the bone-builders were concerned, conducted away the excavated material. If, said Professor Barclay-Smith, a sanitary engineer could devise a system of tubes such as these which would serve the double purpose of waste-pipes and water-pipes he would be the envy of his fellows. Professor Barclay-Smith then went on to describe the fight between these cells and the cartilage tissue which only maintained its existence by growing and expanding. As it grew towards either end of the bone the cartilage was always presenting a longer and longer front to the bony tissue, but in the end it was overcome.

The Problems Involved.

Many problems in connexion with the building of bone had yet to be solved. Whence, for instance, came the bone-builders? Some authorities still maintained that regenerated cartilage cells were the builders. If it was not these cells, then the bone-builder must come from without. If the bone-builder was one of these invading cells did it build bone only, or would it in different circumstances build a different tissue? These questions he could not answer. Sir Auckland Geddes, before the war and before he sacrificed a brilliant career as an anatomist for that of Cabinet Minister and later ambassador, had made some important investigations into this question. As to a directing influence, one answer was heredity, but if it was an answer it was not an explanation. We must go on to ask the genetist to discover the factors whereby the influences which resulted in the building of the body, and in the determination of the form of its parts, were transmitted from parent to offspring. It was known that the building of bone was dependent upon the stress to which the skeleton was subjected during life, for if it was not subjected to these thrusts and pulls which normally occurred certain features of the bone which depended on the activities of the bone-building process did not appear. There was evidence to show that the ductless glands also played an important part in the building processes of the body. These glands were the cause of both acceleration and retardation of growth.

COLONIAL HEALTH REPORTS.

Unfederated Malay States.—A Blue-book has been presented to Parliament containing reports for the year 1919 on the Unfederated Malay States under British protection—viz., Johore, Kedah, Kelantan, Trengganu, and Perlis. In Johore, where the population is estimated at 300,000, the birth-rate was 51·6 per mille, and the death-rate 54·36 per mille. No plague or cerebro-spinal fever occurred, but an epidemic of cholera at Batu Pahat, following on an outbreak in Singapore Island, resulted in 85 deaths, and influenza occurred sporadically.

In Kelantan a mild outbreak of small-pox occurred, but there were no cases of cholera. Dysentery was very prevalent in the town of Kota Bharu in June. Beri-beri unfortunately reappeared in the Central Gaol; the cases did well on intravenous injections of nuclein. In the leper camp the weekly intramuscular injections of chaulmoogra oil, oil of camphor, and resorcin, together with the inunction and oral administration of chaulmoogra oil, were continued, and resulted in three men being discharged free from all active signs of the disease. One private case was treated with sodium gynocardate A, and appeared to derive benefit therefrom. The total number of cases of ankylostomiasis treated was 108 with 1 death, as against 98 with 4 deaths in 1918. Chenapodium oil was given with great success, combined with castor oil, which the senior dresser found to be the best and safest purgative to give with this somewhat powerful drug. The prevalence of ascaris infections may be due to the contamination of food, especially rice, vegetables, and bread, with the excreta of rats and mice. Venereal disease showed no decrease; it accounted for 41 per cent. of the Malay admissions to hospital, 16 per cent. of the Chinese, and 16 per cent. of the Indian. Injections of "914" were given with very good results, but unfortunately this treatment is at present very costly. Forty-four cases of yaws were admitted, many in the tertiary stage, and it is possible that some cases recorded as syphilis were really yaws. Injections of "914" had almost magical success, especially in the stage known as "bunga puru."

In the State of Trengganu venereal disease (especially gonorrhœa and its complications), yaws, worms, skin diseases of many kinds, dyspepsia, and gastritis are the most common maladies. There were no epidemics during

the year. Legislation for making compulsory the vaccination of children is being prepared, and a small hospital is provided for in the Estimates. The medical officer considers that the Trengganu Malay has more faith in European surgery than in European medicine—the reverse of experience in the Western States of the Peninsula. There is no lunatic asylum. Lunatics, of whom there are many in Trengganu town, remain at large until discovered (by an overt act) to be homicidal; then they are confined by their relations in stocks or placed in the gaol, where they remain until they die or appear to recover. The proper treatment of insane persons is admittedly beyond the capacity of native rulers. In the State of Kedah the birth-rate was 30·04 and the death-rate 38·49 per mille. In the two preceding years the death-rate was 21·72 and 23·32. The State surgeon remarks:—

"A comparison between the figures of the last two years shows the frightful havoc caused by the influenza pandemic. The Malay population suffered exceedingly, deaths amongst them rising from 4057 to 7859. Tamils suffered most severely, 1328 dying against 436, a nearly trebled death-rate, even allowing for the increase in Tamil population. The Chinese were much less affected, deaths being 1994 against 1660."

The principal diseases treated in the three principal hospitals of the State (Alor Star, Sungei Patani, and Kulim) were: Malaria, 1957 cases, 112 deaths; dysentery, 354 cases, 91 deaths; ankylostomiasis, 457 cases, 104 deaths; syphilis, 533 cases, 18 deaths; influenza, 552 cases, 134 deaths; and pulmonary tuberculosis, 143 cases, 76 deaths.

In the State of Perlis the birth-rate was 26·8 and the death-rate 31·1 per mille on an approximate population of 36,000. Influenza cast a gloom over the first two months of the year and took a toll of between 400 and 500 lives. No small-pox, plague, or cholera was reported.

Bahamas.—Mr. P. W. D. Ambrister, Acting Colonial Secretary, in a report just presented to Parliament, states that the birth-rate for the year 1919 was 35·7 and the death-rate 17·9 per 1000. The estimated population on Jan. 1st, 1920, was 57,838. The health of the colony in 1919 was good. No serious epidemic prevailed, but there were mild epidemics of influenza, German measles, and typhoid. The admissions to the General Hospital in 1919 numbered 742, making a total under treatment of 897, of whom 278 were discharged recovered, 288 relieved, and 36 unchanged, and 155 died. To the leper wards 5 males and 1 female were admitted, and to the lunatic asylum 24 males and 19 females.

INTERNATIONAL CONGRESS OF COMPARATIVE PATHOLOGY.

THE first congress took place in Paris early in November, 1912, under the presidency of the then Minister of Public Instruction, and was attended by more than 1200 members. The relation of human to bovine tuberculosis, and the changes to be found in the nervous system of rabid animals were two of the subjects which were fully discussed. A second meeting of the congress, as we had already announced, was to have been held in Rome at the beginning of April. Professor E. Perroncito, however, has announced on behalf of the organising committee the postponement of the congress, as the French delegates had intimated their unwillingness to meet German delegates without written acknowledgment by the latter of their responsibility for the European war.

UNDER-WEIGHTS IN MISSOURI.

A RECENT issue of the U.S.A. Public Health Reports records the inauguration in Missouri of "mother-and-child" nutrition clinics for the use of under-nourished children. When the school children in several cities were weighed and measured nearly half were found to be noticeably underweight. In arriving at a decision as to what constituted an under-weight child the table of heights and weights prepared by Dr. Thomas S. Wood, of Columbia University, was used as the standard. A child who was found to be two or more pounds below the average weight for height and age, according to this table, was considered under-weight. The under-nourished child is one who is from 7 to 10 per cent. or more under the average weight for height and age according to the same table. He is not only below normal weight for height and age, but fails to gain at the normal monthly rate. During the period 8 to 12 years of age a boy should gain one-half pound per month; at 12 to 14 years of age he should gain three-fourths pound per month; and from 14 to 16 years he should gain 16 ounces per month. Under-nourished children fail to make these gains, and are, as a rule, pale, dull, listless, and under-sized. They become fatigued easily, and at times have no ambition for work or play. One of the most striking results of such a condition in children is their lack of resistance to acute diseases, and the majority of them suffer from catarrhal conditions of the respiratory tract. The under-weight children were examined and questioned in an effort to find the cause of the under-weight. It was found that these children had, besides physical defects, many faulty habits, such as late bed hours and insufficient or improper food consumption, which accounted to a great extent for the fact that they were not gaining in weight normally. It was considered useless to try to correct these habits without the coöperation of the parents, and plans were worked out to secure this coöperation. Mothers of the under-weight children were invited to the school building to confer with the nutrition worker. Instead of the usual class work in nutrition mother-and-child clinics were held. The nutrition worker sat down with the mother and child and had a confidential talk about living habits. Much was got out which would not have been spoken in the presence of another woman. The prominent defects noted among these children are pale colour, winged scapula, and flabby muscle.

AN ACCIDENT DURING USE OF A HUMANE CATTLE KILLER.

ON March 4th a pony attached to a cart came into collision with a motor lorry at a road-crossing at Richmond. The animal was knocked over and its right fore-leg severely injured. The local inspector of the Royal Society for the Prevention of Cruelty to Animals was sent for, and upon arrival he decided to kill the pony. For this purpose he used the R.S.P.C.A. killer (figured as No. 3, p. 32, "Some Aspects of Humane Slaughtering," by R. O. Paddison, apparently published by the R.S.P.C.A., 105, Jermyn-street, London, S.W.). The inspector requested the police to clear the crowd away, and proceeded to put the nozzle of the killer on the pony's forehead and pull the trigger; death was instantaneous. Just as he was pulling the trigger three girls pushed to the front of the crowd at the side of the pony. As the crowd was dispersing one of these girls called out, "Someone has kicked me," and a few moments later, on examining the lower part of her leg, she found it was bleeding. When taken to the surgery of a local doctor, she was found to be suffering from a penetrating wound of the lower part of the leg about 4–5 inches above the ankle-joint; a piece of the stocking was carried in. Part of the bullet (roughly half), which had killed the pony, was extracted and she went home.

The condition of the girl is reported as satisfactory and whilst absent from her work she is receiving the amount of her wages from the R.S.P.C.A. Subsequent examination of the pony showed that when the cattle killer was fired the bullet struck the vertebræ of the neck and split, one portion remaining in the vertebræ and the other passing out at the back of the pony's neck and striking the girl. The inspector has stated that the instrument used was the only one he had, and was intended for use in slaughtering bullocks only. Since the accident he has obtained the Spearey killer (figured as No. 6 on p. 34 in the publication cited above) designed for killing horses, and will use it in future for this purpose. He further stated that he has had considerable experience in the use of the humane cattle killer; eight years ago on behalf of the R.S.P.C.A. he gave demonstrations all over the country from York to Penzance on the use of the instrument in slaughter-houses, using the same instrument employed at Richmond on March 4th. He had used the instrument for slaughtering "hundreds of beasts," and had never had an accident. Post-mortem examinations had shown that the bullet almost always flattens out in the "brain box," and he has never known a bullet to pass through a bullock's head. With a Greener killer, he states, the bullet has been known to come out of the hindquarters of a beast; there would seem to be some slight danger when this killer is used in slaughter-houses, if or when children are wrongly admitted during the slaughtering. According to the inspector 5000 R.S.P.C.A. cattle killers are in use; he has presented a full report of the accident to the society. The instrument used was apparently somewhat too powerful for this animal, which was only 13 hands in height.

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